

## NOVA™ Real Time Repository

### Managing Change with an Operational CMDB

Enterprises depend upon IT infrastructure operations to enable the delivery of business services with high availability. Business Service Management (BSM) requires IT to align with business, and to manage infrastructure resources from the perspective of end-to-end IT services.

In order to support BSM, IT operations must have more visibility and control of the infrastructure. They are seeking ways to build a database of configuration management data for a centralized view. This data base is called the Configuration Management Data Base and is a key component of the ITIL v3 (IT Infrastructure Library) best practices. The challenge in building a CMDB is often the way the configuration items (CI) are defined and input into the system. Current approaches to create the CMDB are process oriented and largely manual. From an operational point of view, current approaches face challenges in following policies and procedures for managing changes in configurations. The result is a failure to update the data consistently. The NOVA real time repository provides automation and control for an effortless and consistent approach to managing change with an operational CMDB.

*“BSM enables better decision making, and using company IT resources more wisely by assigning priorities correctly based on the business impact of the problems at hand.”*

*Debra Curtis,  
Gartner, 2008.*

*‘The configuration management database (CMDB) of ITIL is a trusted resource for virtually all management disciplines. The CMDB provides a consistent, dynamic view of critical infrastructure, services, and operational and business components. In the view of ITIL, the CMDB holds the relationships between all system components, including incidents, problems, known errors, changes and releases.’*

*Dennis Drogseth,  
Enterprise Management  
Associates, 2008.*

## Enterprise CMDB

The concept of CMDB has gained momentum because of the increasing acceptance of ITIL and the business need to minimize risk from IT by correlating interdependencies of these CI from a business services perspective.

To construct a useful CMDB, enterprise IT must have in depth visibility into the CI. Briefly, configuration management is defined as the process of discovering and tracking relationships among configurable items (CI) and managing changes to configurations. CIs can include infrastructure resources such as servers, etc., infrastructure services such as Web Services, DNS, etc., and users with roles and access privileges.

IT operations typically have silo approaches to managing the configurations of the core and applications infrastructure components. The core infrastructure includes routers, switches, firewalls, wide area network optimizers, application performance accelerators, DNS/DHCP servers, etc. The applications infrastructure includes servers, storage, and applications. The CMDB includes data on all the CI in the infrastructure.

ITILv3 repositions the framework from the previous emphasis on process lifecycle and alignment of IT to “the business” to the management of the lifecycle of the services provided by IT. The ITIL framework is now defined as ITIL Service Management Practices in order to represent service management ‘best practices’.

A CMDB is an intelligent data repository that supports a working model of the IT infrastructure by consolidating different data bases in the enterprise to provide ‘the repository’ of valid information for the infrastructure. This facilitates a consistent view for all Service Transition and Service Operations related processes of interest in ITILv3 such as incident, problem, change, configuration, etc. (See Fig. 1). As a result, the CMDB provides the common framework for IT processes and a repository of valid information to make informed decisions.

The CMDB must have four critical functions, which distinguish it from other databases:

1. Reconciliation of data for uniqueness. This is achieved by avoiding duplicates (e.g. IP addresses) and matching of CIs from different sources.
2. Federation enables many data sources to feed data or just link silo configuration databases into the CMDB -- the silo domains continue to maintain detailed configuration information about a CI.
3. Visualization for peer-to-peer and hierarchical view of the CIs.
4. Synchronization to ensure the same version of the data across integrated systems.

A CMDB constitutes a very important logical asset of an enterprise and must have secure access controls to ensure security of access and data. Only qualified administration changes are allowed to the schema and access is monitored at a CI level.

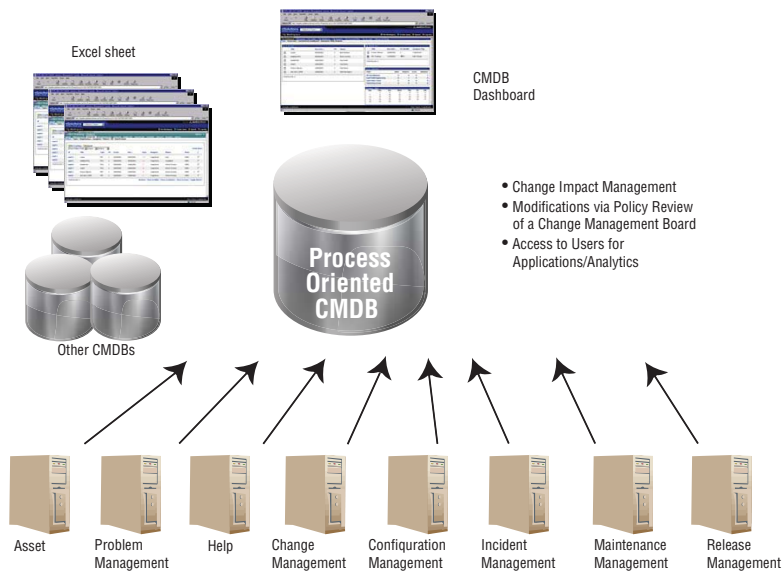


Figure 1: An ITIL Process Oriented CMDB for an Enterprise

## ROLE OF THE CMDB IN IT OPERATIONS

The business case justification for a CMDB is usually made on the basis of priority of projects, such as SOX audits, change management, process automation, service availability and security compliance. IT operations must correlate data from disparate sources to provide better service management and a more consistent view of the entire infrastructure. Many enterprises that have initiated CMDB efforts are working through challenges in implementation in terms of data model, interface definitions, scope, and definitions of CIs etc. Most efforts to date have been process centric and tend to address issues of work flow and business processes. These efforts fall short in addressing the real time needs of IT operations.

In order to support the time critical requirements of business service delivery IT must have an end-to-end view of the services. IT must manage the configuration items as resources, and maintain the relationships, dependencies and interactions of the resources with the process of service delivery in real-time. The dynamic nature of today's business demands that IT operations must be empowered to detect changes, assess the impact the changes have on the IT services and take proactive remediation actions to prevent service disruptions.

These requirements can be met by making the CMDB a part of the real-time operations. What is needed is an Operations CMDB (OCMDB), a real-time component of the federated CMDB and can be used for decision support based on actionable information from the infrastructure. The OCMDB should provide a unified view of the infrastructure, with accumulated real-time information on resource dependencies and relationships to the business services that support change impact analytics. This is critical to respond to potential changes, as well as actual disruptions.

Some of the challenges in creating an OCMDB are:

1. Visibility into the infrastructure resources as CIs at the right level of granularity through automatic configuration discovery. This visibility must include physical, logical and virtual resources in the infrastructure.
2. Automated detection and alerting of changes to configurations in real-time.
3. Correlating the configuration interdependencies for end-to-end business services delivery with the OCMDB as the 'golden repository'.
4. Integration of the OCMDB with the process oriented CMDBs such as BMC's Atrium.

nSolutions' NOVA appliance provides a real-time repository that satisfies all the requirements of an OCMDB (see Figure 2)

## NETWORK ONTOLOGY AND VIRTUALIZATION APPLIANCE (NOVA)

NOVA is a product line of appliances for managing change in IT infrastructures through automation and control.

NOVA provides a single unified view of the configurations, in real-time -- offering a dynamic view of the configuration state of the infrastructure supporting the delivery of business services. With traditional root cause and fault isolation tools, it is not possible to ensure visibility into the configuration state or ensure compliance adherence relative to configuration changes i.e. detecting the configuration change, who made the change and what impact it will have to on-going business services.

There are four important aspects of managing change with NOVA's OCMDB:

### 1. AUTO DISCOVERY OF CONFIGURATIONS

Based on agent less and agent based discovery of the infrastructure, and leveraging an extensive multi-vendor knowledge base and extended library of discovery algorithms, NOVA delivers the most comprehensive automated resource configuration discovery available in the market today.

NOVA creates a virtual construct of the infrastructure -- a real-time configuration repository and automated embedded versioning system. Once discovered, configuration files are parsed and stored as a golden repository, accessible only according to defined user privileges. System functions include automated tracking, retrieval, archival and release management functions such as rollback, versioning and change control of network and infrastructure builds.

NOVA further extends automated discovery by correlating resource information with broader network, server and application configuration data to derive the virtual representation of the critical inter-relationships and inter-dependencies among infrastructure components, functions and processes. This unique and unparalleled capability enables IT operations to establish policies and identify vulnerabilities from a broader IP Services context.

NOVA creates the repository of the configurations of the resources, at the right level of granularity, whether physical, logical or virtual resources. The trusted global repository that results becomes the NOVA Repository-- a real-time OCMBD capable of being federated and synchronized with others in the system.

### 2. OBSERVING A CHANGE OF STATE

NOVA detects changes in real-time by processing of events or by scheduling scans of the infrastructure periodically for security, compliance or best practices. NOVA compares changes in configuration state with the baseline in the NOVA repository and if there is a change of state due to a change in a configuration, file or a log, the detection system sends an alarm. Not only is this an alarm of a failed policy, it could also trigger a notification for action to an administrator.

### 3. DECISION SUPPORT

Once an alert has been processed to determine the violation of a security or regulatory policy, NOVA provides the remedial action that could be either an automated course of action or the creation of a trouble ticket advisory. The *'golden states'* of the correct configurations should be the ones in the repository. The change impact analytics provides decision support for the remedial action and the sequencing of tasks to address the change from a security or availability point of view.

### 4. FEDERATION WITH CMDB

NOVA uses its Service Gateway to exchange information in real-time bilaterally with other process oriented CMDBs and platform systems for performance data. NOVA provides discovered state information and policy enforcement results to the process oriented CMDB and acquires change audit and desired state information from the CMDBs (See Figure. 3)

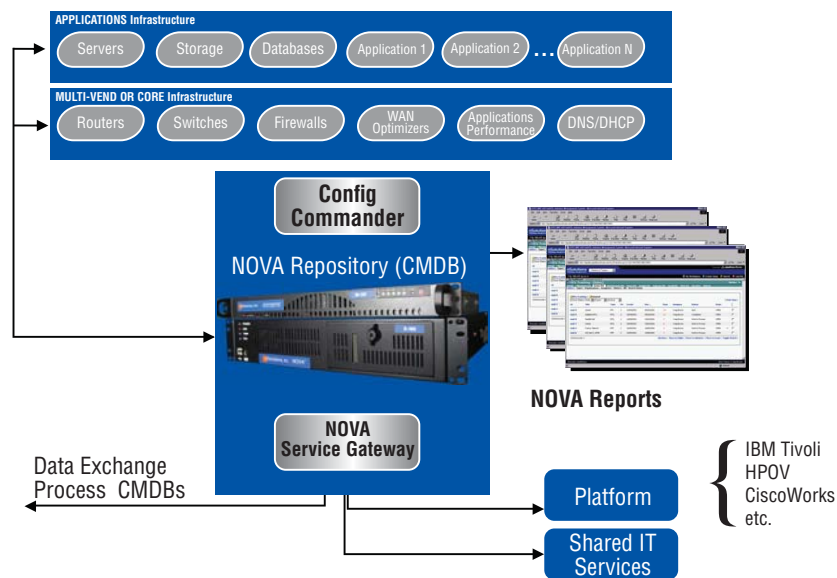


Figure 2: NOVA Repository as an Operational CMDB

### BENEFITS OF NOVA REPOSITORY AS AN OCMDB

The NOVA Repository provides additional value as an Operational CMDB:

#### • PROACTIVE CONTROL OF OPERATIONS

NOVA's ability to manage change in real-time combined with the trackability and traceability of change with the NOVA Repository as the *trusted source* results in transforming the IT operations from a reactive management to a proactive control of the operations and policy enforcement. Businesses benefit from lower error rates, higher consistency of operations and higher availability of business services.

#### • CONTINUOUS COMPLIANCE

NOVA detects change in real-time and the NOVA Repository enables policy enforcement for continuous verification of regulatory or security compliance across the entire IT infrastructure, providing track-ability of changes and generating on-demand reports for audits.

### • REAL TIME SECURITY

NOVA Repository becomes the *trusted source of golden repositories* of configurations and policies in a multi-vendor infrastructure. As an Operational CMDB, the NOVA repository has the potential to provide real-time security for the entire life cycle of the connected devices that support a business service: from preadmission assessment to continuous monitoring and control of managed devices.

### • BUSINESS RISK

Managing change through automation and control supported by an OCMDB minimizes human error and reduces potential forced outages. It reduces risk of revenue and brand reputation losses due to unavailability of business services and customer satisfaction issues. By successfully managing change, business services can be more responsive to customer requests, new opportunities, and enhance customer satisfaction. NOVA delivers continual service improvement and therefore a greater ability to meet Service Level Agreements.

### • REDUCED OPERATING COSTS

Automating change with the 'trusted data' in the NOVA Repository and the change impact analytics of NOVA results in improved productivity, dramatically reduces the costs of downtime by lowering the time to repair, and enhances service predictability and availability.

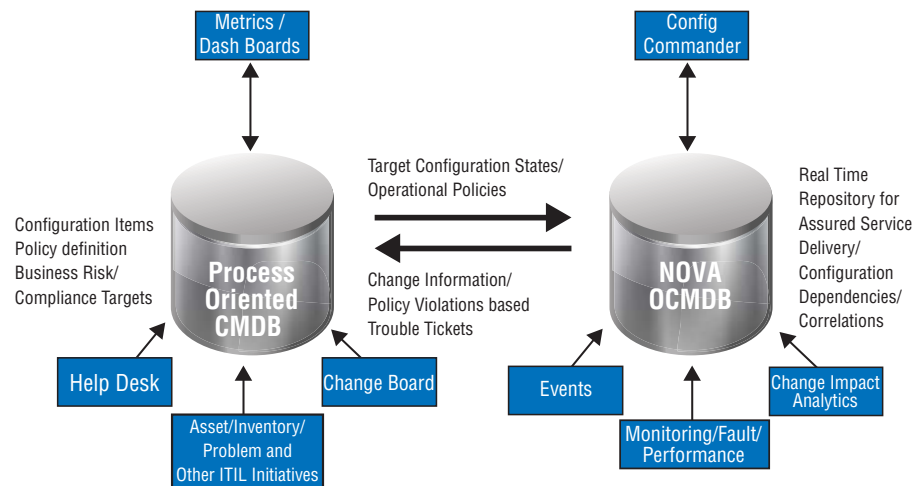


Figure 3: Federation of NOVA OCMDB with Process CMDB enables reconciliation and synchronization of data

## CONCLUSION

The NOVA real-time repository provides automation and control for an effortless and consistent approach to managing change with an Operational CMDB. NOVA provides a consistent way to transform real-time change data into actionable intelligence based on a repository of resource configurations, relationships and inter-dependencies from a business IT services perspective. The information in the NOVA repository can be leveraged across process oriented CMDBs across the enterprise. As an Operational CMDB, NOVA provides visibility and control for managing infrastructure resources as they relate to delivery of business services.

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Call today to arrange a demo of NOVA and learn how NOVA Repository can accelerate time to value.