

# Configuration Management True Knowledge of IT Infrastructure

Presented By:



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## Configuration Management

True Knowledge of IT Infrastructure

### Section Summary

It is essential to know the state of IT systems at any point in time.

Operating without accurate, up-to-date information on the IT infrastructure is like working in the dark.

## Executive Summary

IT is no longer separate from business; IT is now the foundation that enables business to function, innovate and compete. As IT continues evolving it facilitates changes that create new business opportunities and services. In turn, these new technologies require expanding the reach of business. Virtualization, The Cloud, mobile technologies and social media continue reshaping the ways in which people, businesses and governments operate and interact.

Expansion of services and business opportunities thrive when interactions between people and technology become simpler and more intuitive. However, frontend simplicity requires increasingly high levels of complexity behind-the-scenes to meet current expectations of flawless availability while also preserving the integrity and confidentiality of the system, data and all transactions.

In recent years, the dramatic growth in demands for new IT services, functionality and capabilities has combined with budget constraints and a highly competitive marketplace requiring IT organizations to maximize efficiency and reduce costs. Until recently IT organizations have been allocating most resources to keeping the business running (70%) and fewer resources to growing the business (30%). Nevertheless, according to Forrester Research an estimated 60% of IT organizations operate in a reactive mode, that is, having to manage frequent unexpected emergencies and facing limitations in their ability to analyze trends, automate tasks, plan capacity and provide value as strategic business partners.

In order to add value and support business initiatives IT organizations need a comprehensive view of their entire infrastructure. With growing complexity and limited resources, a major challenge confronts IT organizations:

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how to develop true knowledge of the ever changing IT environment? Configuration Management Systems provide insight into performance, maintenance, trends in use as well as security, vulnerabilities and historical data on the whole IT enterprise. This information is critical for proactive capacity planning, optimal allocation and use of resources and improved quality of services.

The integrated Service Asset & Configuration Management solutions offered by SunView Software provide IT organizations with true insight into their IT infrastructure, components and services empowering them to leverage IT resources in support of business.

## Challenges to IT Infrastructure Transparency

It is undeniable that all information systems are in a constant state of change. Change is necessary to respond to the evolution of business functions and processes, as well as to consumer demands and marketplace trends. This is due to constant change determining the state of information systems at any point in time. Many companies try to keep track of IT resources through a combination of asset management and network monitoring, as well as a collection of locally developed applications and spreadsheets. Unfortunately, these fragmented efforts fall short in providing a reliable representation of the whole IT infrastructure. Just maintaining information about existing components, services, and software, not to mention their corresponding configurations, updates and patches, can be a daunting task. Add to that a combination of virtual components (computers, servers and storage), cloud services - both owned and outsourced, and employee owned devices (Bring-Your-Own-Device – BYOD), and you can witness the complexity of the various systems, as well as the difficulty tracking them, skyrocket. Thus, operating without accurate, up-to-date information on the IT infrastructure is like working in the dark.

## Section Summary

### Challenges to accurate IT knowledge:

- Tracking assets, components, software & services
- Maintaining real-time configuration data
- Supervising virtual & physical components
- Monitoring mobile device activity in compliance with established policies

### Increased IT transparency assists in anticipating:

- Risks to operations, services and data
- Security vulnerabilities
- Compliance violations

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In order to perform at the level required by business today, IT needs to go beyond accounting for assets, components and services. IT needs to gain a comprehensive and detailed view of its systems to provide a competitive edge by improving performance, lowering costs, increasing efficiency, anticipating trends, and assisting innovation. Furthermore, a clear view of the IT infrastructure is essential to anticipate operations risks, services concerns, security vulnerabilities, and compliance violations. Without up-to-date information, even a deceptively simple network configuration change, or the rollback of an unintended modification, can result in unforeseen and costly mistakes.

### Key Concepts to IT Infrastructure Integrity

In order to develop a clear understanding of the need for infrastructure integrity and transparency, it is helpful to review a few key concepts:

**Configuration Item (CI):** A component or service controlled through configuration management processes. A CI can be hardware, software, firmware, a contract, a purchasing document, a policy, an employee or any discrete information relevant to managing, monitoring and controlling the component.

**CI Attributes:** Detailed information about a CI according to business and management objectives. It can include a combination of:

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#### Key Concepts to IT Infrastructure Integrity:

- Configuration Item
- CI Attributes
- Baseline Configuration
- Change Management
- Configuration Management Database (CMDB)
- Configuration Management
- Configuration Management System
- Service Knowledge Management System

CI Attributes	
<ul style="list-style-type: none"><li>• Name</li><li>• Description</li><li>• Type</li><li>• Manufacturer</li><li>• Version number</li><li>• Model number</li><li>• Location</li></ul>	<ul style="list-style-type: none"><li>• Status</li><li>• Owner</li><li>• User(s)</li><li>• Change History</li><li>• Relationship to other CIs</li><li>• License details</li></ul>

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**Baseline Configuration:** A set of approved specifications for a component, service or CI. These specifications are subject to change management control and can be used to plan and audit modifications as well as to ensure security and compliance.

**Change Management:** Processes and activities to ensure that changes to the IT infrastructure are authorized, planned, prioritized, tested, implemented, documented and reviewed in an accurate and repeatable manner to minimize business risks.

**Configuration Management Database (CMDB):** A unified or federated repository of information about all the components in the IT environment including processes, people, hardware, software and network devices. In addition to tracking and managing Configuration Items (CIs), The CMDB provides visual mapping, CI relationship and dependency information that is not available in other configuration management tools.

**Configuration Management:** The processes and activities used to manage, monitor and maintain the configuration of a CI in order to deliver an IT service and to ensure its integrity and congruency with business goals and operations. In the most recent version of ITIL (v3) Configuration Management combines with Service Asset into SACM.

**Configuration Management System (CMS):** The tools and databases used to manage IT configuration data, including information about Incidents, Problems, Changes and Releases as well as data on employees, suppliers, locations, customers and users. The CMS includes tools for collecting, storing, managing, updating and presenting data about all Configuration Items (CIs) and their relationships with other CIs. The CMS receives information from one or multiple CMDBs and interrelated tools.

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**Service Knowledge Management System (SKMS):** The tools, processes, databases and information about the IT infrastructure that ensure that the right person has timely, accurate and appropriate knowledge to deliver and support services in alignment with business objectives. The SKMS encompasses the Configuration Management System.

### Knowing the IT infrastructure

Incomplete information on how information systems are networked, configured, maintained and managed influence visibility of the system, seriously affecting security, capacity planning and risk management. To stop operating in the dark, IT management must move from fragmented information about components, services and maintenance needs to an integrated system where complete CI information and CI dependencies articulate, with historical data, about configuration, maintenance and change for the whole IT enterprise. If this does not happen, data and information about the system, trends in operations and downtime, cost calculation (including resources and staff) and historical performance remain incomplete and isolated and cannot be transformed into useful, applicable knowledge. Thorough, accurate and current knowledge of the IT infrastructure is the keystone to providing value through available, efficient and reliable IT services. The ITIL framework in its most current version (v3) provides valuable guidance that each organization can adapt and adopt to implement an intelligent approach to IT Service Management.

### Differences between Asset Management and Configuration Management Databases

In order to build useful and applicable IT service knowledge it is helpful to explore the components of an integrated system. First, it is important to clarify that there is a difference between Asset Management Systems

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### Section Summary

Ensuring an efficient, reliable and available IT infrastructure requires transforming data and information into Knowledge.

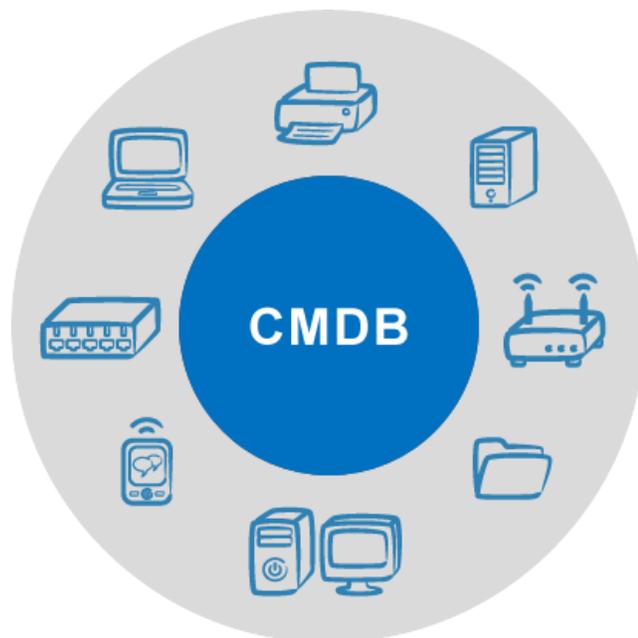
#### **CMDBs provide real-time visual maps of the IT infrastructure to:**

- Understand dependencies
- Assess impact of changes
- Allocate resources efficiently
- Perform root-cause analyses

Automatic Discovery tools detect and identify details on devices attached to a network including relationships and dependencies.

Change Management uses the CMDB as a well documented and trusted audit trail of IT configuration changes over time.

and Configuration Management Databases (CMDBs). Although both track IT components, Asset Management is focused on tracking and reporting on the financial and governance information of resources used to provide a service. For instance, Asset Management controls inventory of components and devices, hardware and software in order to manage depreciation, usage, location, ownership, licenses, warranties, etc. CMDBs, on the other hand, store CI attributes and the relationships and dependencies between CIs. Furthermore, CMDBs can provide graphical representations of these varied relationships between CIs through a real-time visual map of the infrastructure. These visual maps of the infrastructure are instrumental to understanding dependencies between components in order to assess the impact of planned changes, allocate resources and perform root-cause analyses.



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### Section Summary

#### Configuration Management System:

- Incident Management
- Problem Management
- Change Management
- Release Management
- Help Desk
- Service Catalog

#### Configuration Management System benefits:

- Increased efficiency
- Reduced costs
- Heightened network and device security
- Greater success rates of change
- Better predictive planning
- Enhanced disaster recovery planning
- Improved regulatory compliance
- Higher ROI
- Improved support of business objectives

## Populating CMDBs

In ITIL, trusted sources of information supply CMDBs with accurate configuration data. In current IT organizations, taking inventory to account for each and every device and component poses a challenge in terms of time and resources. To address this modern systems include automated discovery tools. These in turn, save valuable time in populating a CMDB as they can detect and identify devices attached to a network, providing specific information such as serial numbers, device hardware and software and patches installed. Moreover, automatic discovery can identify dependencies within the network and monitor network activity.

## Integration between Change Management and CMDB

Since IT systems are in constant change the information about the infrastructure is only useful if it is up-to-date. Change Management is focused on maintaining integrity of both the components and the overall infrastructure through controlling the processes for making any changes to it, such as adding, changing, updating and retiring components. By integrating CMDBs with Change Management organizations increase their understanding of their systems. Change Management can use the CMDB as a well documented and trusted audit trail of configuration changes over time to monitor compliance with organizational guidelines. In addition, establishing an accurate configuration baseline assists in impact analysis of planned changes to prevent unintended outages. Furthermore, Change Management and a CMDB enable organizations to implement the recommendations of the National Institute of Standards and Technology – an organization with a main goal being to protect and document information systems and to ensure confidentiality, integrity and availability of the system and its information.

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As a result, organizations can gain accurate understanding of their current information systems, determine usage and performance trends, ensure consistency with existing policies, monitor remote connections and determine authorized and unauthorized use, achieve effective accountability and engage in proactive capacity planning.



### The Configuration Management System and its benefits

This comprehensive yet detailed understanding of the IT infrastructure is the foundation necessary to convert information and data into true knowledge that enables IT organizations to become a valuable operational, tactical and strategic component of the enterprise offering numerous benefits:

- **Increased efficiency:** Easily available information about services and components assists in discovering and eliminating unnecessary duplication of tasks, resources and staff assignments.
- **Reduced costs:** Accurate knowledge of resource lifecycles, historical tracking of components and reporting facilitate charting usage trends to optimize operations and reduce costs.

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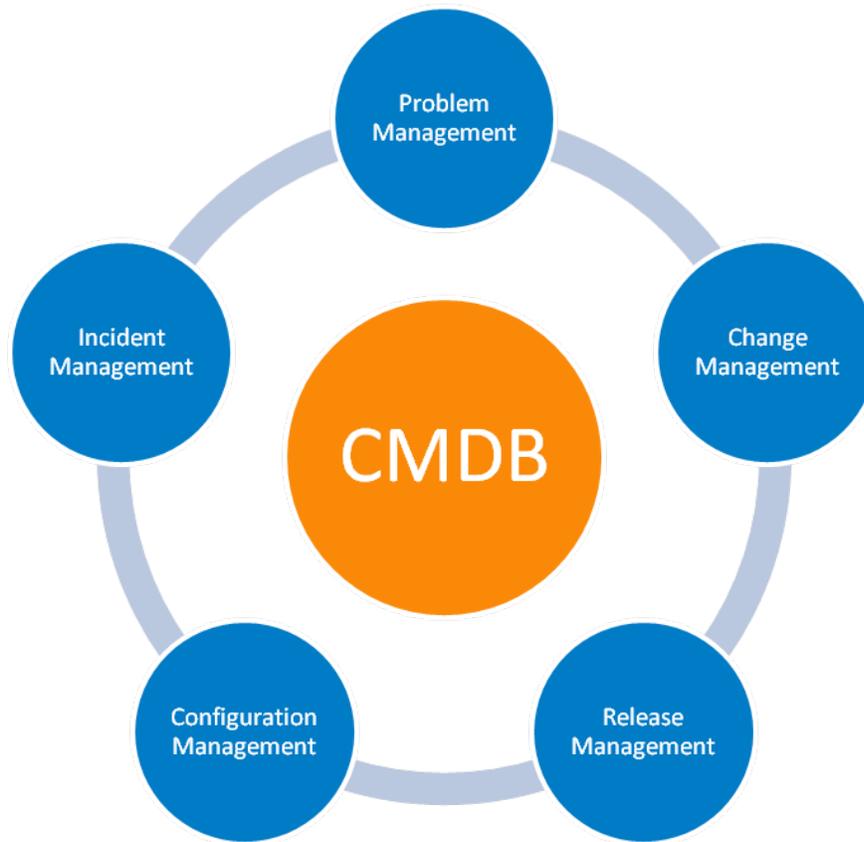
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- **Heightened network and device security:** Secure baseline configurations, historical documentation of changes, complete visibility and continuous monitoring safeguard the security of the system by streamlining maintenance of security standards, detecting unauthorized access, diminishing system vulnerabilities and protecting the confidentiality of processes and proprietary data.
- **Greater success rates of change:** Real-time accurate information on configuration and component dependencies facilitates planning, impact analysis and management of changes to avoid unnecessary interruptions and downtime.
- **Better predictive planning:** Consolidating CI data and usage trends assists in estimating needs, determining capacity and budgeting according to future business objectives.
- **Enhanced disaster recovery planning:** Integrating baseline configuration data, specific information about each CI –including ownership and users, and CI interdependencies is instrumental to prepare for continued operation and rapid recovery of IT services in case of a disruptive event.
- **Improved regulatory compliance:** Comprehensive and detailed information on the IT infrastructure that includes a historical record of configurations and changes and CI monitoring provides a robust audit trail ensuring that component information is accurate and complete and demonstrating control of internal processes, fundamental to complying with regulations like the Sarbanes-Oxley Act, the Health Insurance Portability and Accountability Act (HIPAA), the Federal Information Security Management Act (FISMA), the Gramm-Leach-Bliley Act, and the Payment Card Industry (PCI) Data Security Standard.

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- **Higher ROI:** Better control of IT components, increased efficiency, reduced operation and licensing costs, improved security and faster problem resolution contribute to greater availability and value of IT operations and services.
- **Improved support of business objectives:** Accurate, relevant and comprehensive information on IT resources facilitates better system, staff and resource management and overall responsiveness of IT to business demands and new initiatives.



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## Strategy for Implementing a Successful Configuration Management System

Since a robust CMS integrates a wide variety of systems a well thought-out, phased implementation can assist in motivating buy-in and producing tangible results early in the process.

The first step in the implementation process is to define the business objectives for the system. These objectives will be useful in aligning the CMS with business needs. In addition, specific objectives will help clarify what will be accomplished, how the CMS contributes to achieving these objectives, what measurable results are expected as well as specific milestones to ensure accountability.

With clearly defined objectives the next task is to examine the IT service organization in order to identify policies, processes and roles and the ways in which they are related. Noting these relationships provides insight into interdependencies as well as existing and potential challenges and vulnerabilities. The importance of this stage cannot be underscored enough.

The next step is to take a thorough inventory of the infrastructure to gather accurate information on the existing systems, components, devices and applications across the enterprise. Reliable auto-discovery tools save time and resources in populating the CMDB. The following stage is integrating the CMDB into the Configuration Management System. Auto-discovery tools can monitor network activity to supply the CMS with current information. To further enhance the system integration with Change Management tools will help verify that modifications to components and services are approved, authorized and accounted for. Additional integration with Help Desk, Incident Management, Problem Management and Service Catalog creates a complete and

### Section Summary

#### Configuration Management System Implementation

- Define business objectives
- Identify policies, processes and roles
- Populate CMDB with accurate information
- Integrate CMDB into CMS
- Articulate CMS with Change Management
- Measure implementation result

Ensure that the CMS is current, available accurate and stable over time.

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thorough repository of accurate information to track all CIs throughout their lifecycle. Clearly defined implementation objectives enable accurate measurement of implementation results. In addition, establishing key performance indicators and measurement procedures for the CMS will enable reporting to leverage information into knowledge.

Obviously, rolling out a CMDB and integrating with a functional CMS is a large undertaking, especially for large organizations with complex infrastructures. Thus, a phased approach with well-defined phases is easier to control and assess. Some options include starting with relatively simple systems or choosing a single mission-critical application. Smaller, manageable implementations also limit the level of risk, facilitate testing, reduce testing time and help with organizational and staff acceptance and training. An additional advantage of phased implementations is the development of in-house knowledge of the infrastructure, the CMS system and the implementation process, all valuable in further iterations of the implementation to grow the scope of the system.

The CMDB and the CMS system will only be useful as long as they are current and available. To ensure the system is available and stable, establish rules and responsibilities to manage the system comprising setup, maintenance, updates, changes, support of related hardware and software, back-up, automation of tasks and notifications, and sufficient load and throughput capacity. Periodic audits will also assist in assuring accuracy of the information in the system.

Finally, compatibility between the CMDB and CMS and other existing databases and systems as well as programmatic access and extensibility through APIs will contribute to tailor the system for greater flexibility, interoperability and responsiveness in alignment with changing business needs.

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#### Sunview CMDB solution components

- Federated CMDB
- Resource Discovery Expert
- Business Policy Automation Engine, Dependency Mapping
- Real-Time reporting

## The SunView Software Solution

For over a decade SunView Software has been helping companies automate and streamline IT service management processes. Based on the ITIL best practices framework SunView Software's complete suite of products are fast to implement, intuitive to use, and easy to customize without sacrificing performance, scalability, and reliability.

SunView's CMDB solution consists of a federated repository of CIs, an automated discovery tool, the ChangeGear™ Resource Discovery Expert™ (RDE), the Business Policy Automation engine, Dependency Mapping and Real-Time reporting. The CMDB includes information about business services, hardware, software, CI owners, users, documentation, and configuration settings, and it can be extended and modified to suit specific business goals. The RDE can be configured to discover both physical and virtual resources connected to the network, and to monitor network activity according to specific parameters. The Business Policy Automation engine uses configurable rules to respond to specific actions such as changes to hardware or software by notifying IT staff and keeping an audit trail of change activities. Dependency Mapping creates visual representations of the IT infrastructure including the relationship and dependencies between CIs. Numerous predefined reports and a built-in ad hoc reporting tool facilitate analysis of the IT environment. Since integration is essential to gain a representative picture of the whole IT infrastructure, the CMDB integrates seamlessly with SunView's Change Management, Service Desk and Service Catalog, as well as with data from existing applications like help desk and system management using the Web Services API, XML and ChangeGear Universal Data Services™ (UDS).

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With numerous features, extensibility and ease of use, ChangeGear CMDB makes it possible to implement a functional, comprehensive and reliable Configuration Management System leveraging information from Incident Management, Problem Management, Change Management, Configuration Management, Release Management, and the Service Desk.. The ChangeGear CMDB solution ensures that you understand, manage and control the IT infrastructure.

## Conclusion

Growing complexity, continuous change and the need to offer a competitive edge to the business, demand that IT service management ensures the transparency, integrity and efficiency of its operations. A Configuration Management Systems enables IT to gain a comprehensive view of the complex IT environment, as well as detailed insight into components and dependencies. Combine that with the ability to integrate these perspectives with existing information systems, and IT moves beyond merely managing resources.

Meeting this end goal presents a challenge for IT though, and much of this falls on the ability and use of a modern IT Service Management tool. A tool that, in fact, must integrate both change management and configuration management processes equally. Even beyond that though, the complexity and scope of managing these processes must be kept in check by a tool that will provide a wide range of customization and automation options. Essentially, the system must be flexible enough to bend to the changes of the business, and powerful enough to reduce manual processes. This drive for improvement, and ultimately efficiency within IT, needs an integrated ITSM solution like ChangeGear.

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