

# Technical Articles

## Fully Enabling Best-Practice Standards through Implementing Next Generation Intelligent Systems

The world of the traditional network infrastructure is changing rapidly. Previously independent data, telephone, security, and building automation networks are converging. The 'cloud' is rolling in thick and fast, additional regulatory and security measures are continuously introduced and former IT initiatives now sit resounded within business initiatives. These initiatives demand that IT look beyond supporting infrastructure, devices, and applications on the network to managing the services that are supported by these components. All of this must be accomplished in an environment of optimizing costs and resources. This evolution dictates change in the way IT manages the network and components in order to meet these new challenges. Legacy Intelligent systems have focused on managing the patch zone and have expanded in an attempt to gather information about the device associated with a particular patch. Next Generation Intelligent systems must provide a more holistic view of the all the physical components used to deliver services to the end user. This will enable Intelligent systems to provide the information required to manage today's networks and associated issues.

To meet these business initiatives, IT departments have implemented IT best-practice standards such as IT Infrastructure Library (ITIL) to streamline IT functions and activities. ITIL is the most widely adopted best-practice standards for IT Service Management in the world, including users such as NASA, the UK National Health Service (NHS), HSBC bank and Disney™, and supported by many known solution vendors. ITIL provides a practical framework for identifying, planning, delivering and supporting IT services to the business. ITIL divides the service life cycle into several stages. Next Generation Intelligent systems can significantly contribute to two of them; Service Transition and Service Operation.

Service Transition implements the service and is supported by Change Management and Service Asset and Configuration Management. Each provides consistent processes to implement, manage and record changes, as well as configure items across the organization's infrastructure. A Configuration item is an attribute on any device, network component or application that affects service delivery. Next Generation Intelligent systems track physical changes across the network that Service Transition relies on to initiate ITIL processes.

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Without this information from the Intelligent system, ITIL processes must rely on less timely and less reliable sources before information can be updated.

Service Operation delivers service levels to end users and manages the components that support their delivery. Event, Incident and Problem Management processes detect and monitor Configuration Item changes, triggering restoration of interrupted services, identifying the cause and supplying the resolution. Next Generation Systems enhance the effectiveness of Service Operation processes by updating Configuration Item attributes with current information. This decreases the time required to resolve incidents and problems.

One area of particular focus for ITIL is the Configuration Management Database (CMDB). A CMDB is the repository for information about all configuration items in a network that impact delivery of a service to the business. It tracks the technical configuration and ownership of the component as well as the relationship between components. There are many CMDB solutions that track just about anything an organization might need to know to monitor and maintain services; from what infrastructure components are connected to the network to the versions of applications on any device attached to the network. A key success factor in implementing ITIL in general and the CMDB in particular is having the ability to automatically discover information about configuration items, track changes as they occur, and deliver that information to the CMDB where ITIL processes can act on this information. The CMDB is the core tool for Service Asset and Configuration Management.

A common way to implement the CMDB is to aggregate data from multiple sources. This allows each data source to maintain control of the configuration item information while allowing the CMDB to access this information and correlate the information with information from other sources. Each data source must be able to automatically discover information and track changes as they occur.

An Intelligent system is one of the data sources that can provide data from the typically traditional passive structured cabling infrastructures that connect network devices together. The plethora of features that

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come with implementing an intelligent system provide increased productivity and efficiency of IT service management processes and the ability to offer IT 'forensics' which add to the value of the CMDB. The adoption of Next Generation systems provides the critical link between the logical view of the network (OSI Layer 2 and above) with the physical configuration of the network (OSI Layer 1). The challenge for Next Generation Intelligent systems is that they must provide enough information to allow the CMDB to correlate the physical layer configuration items to the services and end users that utilise that physical channel.

Asset Management and Incident Management are two processes that require knowledge of the physical location of an asset to provide value to the CMDB user. A specific example is providing location information to emergency responders. In the United States, e911 regulations require that the administrator for the telephone system must provide the physical location for any telephone capable of dialing e911 emergency services. With the advent of VoIP phone systems and the capability of moving telephones and telephone numbers around the network with little or no intervention required by IT, tracking the physical location of phones and phone numbers has changed from a reasonably static and manageable process to a dynamic and uncontrolled process that potentially exposes the business to substantial regulatory and financial penalties. The opportunity for Next Generation Intelligent systems is to update the CMDB as phones are moved around as moves occur. This information in turn triggers the ITIL processes to update the records used to provide e911 location information for the phone.

To fully enable ITIL, Intelligent systems must move beyond providing the configuration and status of physical links to identifying any physical change associated with that link including when devices attach and detach from the network and gathering and storing additional configuration item information. A partial list of additional configuration items includes the identification of the endpoints of the physical link the Intelligent system is tracking such as the outlet ID and room the outlet is in, the network port that connects the physical link to the rest of the network, and identification of the device that is attached to the outlet. The Intelligent system would discover and update these configuration items automatically and pass this information to the CMDB.

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With this information the Intelligent system becomes an indispensable part of the CMDB. Going back to the e911 case presented earlier, the Intelligent system would detect the device attaching to the network, gather basic configuration information about the device and relay the changed device and location information to the CMDB. At this point ITIL Service Operation processes would evaluate the change in the CMDB and initiate the appropriate Event, Incident or Problem processes to resolve issues caused by moving the asset and update records affected by the move. The end result is an e911 database is updated with the new location information for the telephone which keeps the business in compliance with e911 regulations.

Additional benefits that Next Generation systems contribute to ITIL include updated asset and configuration management records that ITIL processes use throughout the Service Management lifecycle. Current, accurate and complete information on the configuration and location of devices and physical infrastructure enables more efficient Service Operations processes and meeting Service Level Agreements negotiated between IT and the business. Audits and inventory processes start with an up to date list of devices and their locations. Incidents involving a device can be resolved faster because the location of the device and the components it connects to are already known, eliminating the time the responder currently uses to trace the physical path.

Business initiatives and today's economic environment demand that the IT organization align itself with the business organization. ITIL and other best practice standards are utilized more and more as a way to improve IT's value to the business. Next Generation Intelligent systems are an important part of realizing this increase in value by providing current, accurate and complete physical layer information not available from any other system.

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