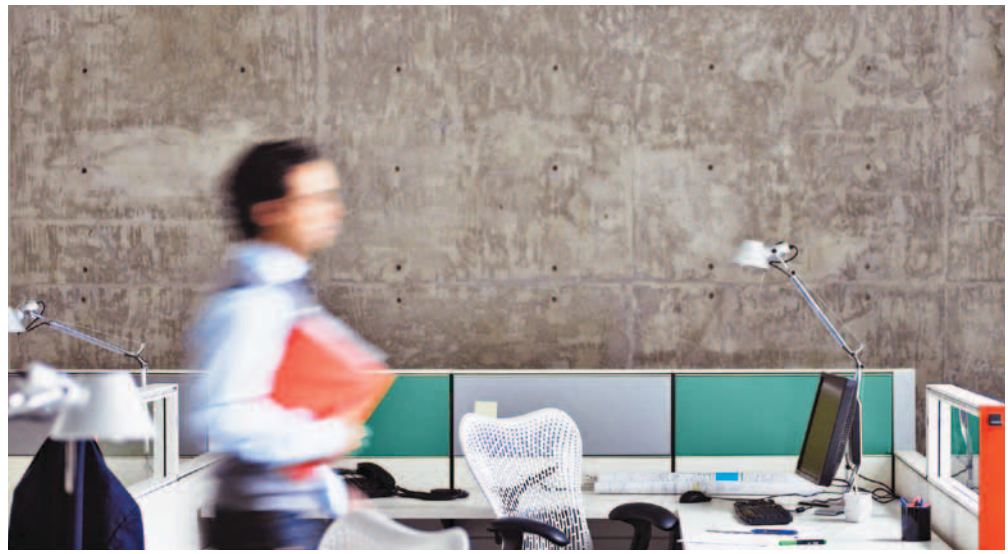

Smooth operator

By Roger Foreman

Built by implementing an innovative, user-driven development process, the Dell™ Chassis Management Controller (CMC) 3.0 embedded management tool enables administrators to simply and intuitively manage multiple blade servers from a single console.

CMC 3.0 interface video

This video provides a brief tour of the GUI in the CMC 3.0 management tool embedded in PowerEdge M1000e enclosures.

delltechcenter.com/video/10037711/cmc+3.0

The Dell Chassis Management Controller (CMC) is a management tool embedded in Dell PowerEdge™ M1000e modular blade enclosures that provides powerful functionality to help administrators simply and easily manage blade servers and blade server enclosures. Functionality available in the CMC includes dynamic power management, blade server component monitoring, and real-time reporting of power consumption, temperature, and other indices of blade server and chassis health.

To help make chassis management even easier and more intuitive than using traditional management tools, Dell substantially redesigned the CMC interface for version 3.0. In particular, the development team wanted to dramatically enhance the simplicity and usability of the management tool—with the goal of enabling busy system administrators to spend as little time as possible managing servers, leaving them with additional time for other, increasingly complex tasks.

The development team utilized an innovative, iterative, user-driven design process to help streamline the management tools for administrators of PowerEdge blade servers and modular blade enclosures. The team collaborated with the Dell Experience Design Group to begin designing an interface that would be robust yet intuitive and easy to use, and then built and tested the software using the Agile programming methodology, an iterative

development method that incorporates user feedback continuously throughout the development process.

The result: CMC 3.0 offers a rich set of features and a graphical user interface (GUI) that incorporates the Dell Clarity E style, an approach that provides dynamic, self-refreshing pages; an updated color scheme; and an intuitive home page that allows administrators to perform most monitoring and management functions from a single screen, and with significantly fewer mouse clicks than in previous CMC versions.

Collaborative design

A key goal for the CMC 3.0 development team was to design a tool that provides robust functionality but is also intuitive. To help achieve that goal, the team enlisted the help of the Dell Experience Design Group, a cross-functional team of design experts at Dell that comprises UI designers, usability engineers, and Ph.D.-level cognitive scientists and psychologists.

In collaboration with this group, the CMC 3.0 development team first used extensive input from target users to identify and carefully catalog typical chassis management tasks that administrators perform. Identified tasks included managing power usage, monitoring blade server components, and quickly consulting indices of server health such as temperature and power consumption; additional tasks included adding users, configuring servers, and diagnosing and resolving errors.

The team then used this feedback to design a UI prototype based on the Dell Clarity E style, which is now the standard for Dell OpenManage™ systems management tools. The style employs a wide range of dynamic, self-refreshing screens, colors, and features, and offers a consistent look and feel across systems management tools in the Dell OpenManage suite.

Using the Agile programming methodology, a Dell team of more than 20 programmers developed incremental features during

Guided tour

Administrators can access the CMC 3.0 interface through a standard Web browser, and monitor up to 16 blades on a single screen.

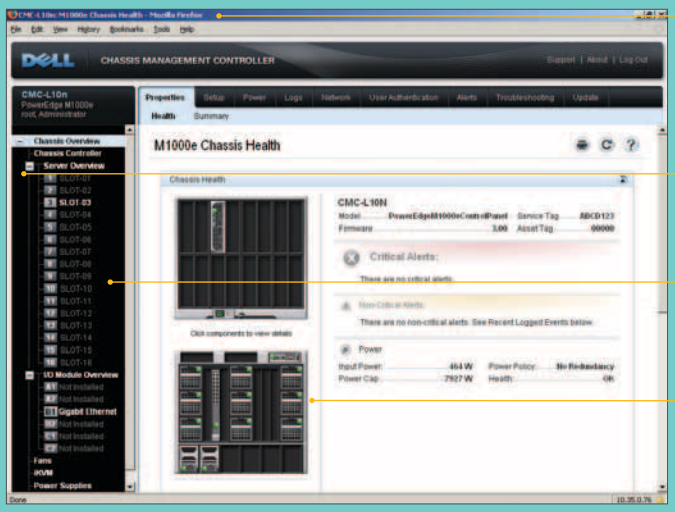

Figure 1. Home page for Dell PowerEdge M1000e chassis status in CMC 3.0

Figure 2. Health, power consumption, and temperature status for a blade server in CMC 3.0

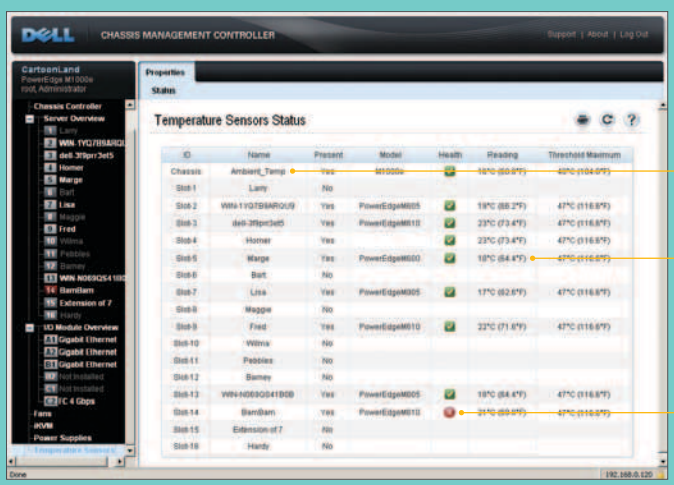

Figure 3. Sensors for ambient chassis and blade server temperatures in CMC 3.0

> "The heart of CMC 3.0 is its intuitive home page, which enables administrators to use a single Web-style page to perform most monitoring and management tasks."

Systems management for Dell blade servers

In this video, Roger Foreman discusses the benefits of using CMC 3.0 to help streamline systems maintenance tasks.

youtube.com/watch?v=s-ASdMtJY5k

every three-week sprint. Sprints concluded with a live demonstration to solicit feedback and final approval that each feature met the need to optimize simplicity, functionality, and ease of use.

Intuitive management

CMC 3.0 offers a redundant monitoring and management tool that is embedded in Dell PowerEdge M1000e modular blade enclosures. The CMC 3.0 user interface, accessible through standard Web browsers, is automatically included with the hardware and does not require special installation.

The heart of CMC 3.0 is its intuitive home page, which enables administrators to use a single Web-style page to perform most monitoring and management tasks (see Figure 1). Using the home page, administrators can see the status of chassis components at a glance and perform key functions such as power cycling, power management across blades, and error diagnosis. The home page is also dynamically updated, enabling administrators to access up-to-date status and error information without having to manually refresh the screen.

CMC 3.0 is also scalable: administrators can see and monitor up to 16 blades on a single screen, and can easily drill down into individual components to view detailed information. For example, an administrator can click a power supply to quickly see its properties, its status, and links to other actions or detailed information. Similarly, clicking an individual blade server brings up key status indicators such as health, power consumption, and temperature, and also provides server properties and links to other actions (see Figure 2).

Other features of CMC 3.0 include automatically populating the slot name that appears in the browser title or tab with the host name as defined by the OS running on the blade, as well as system-wide temperature monitoring, which enables administrators to monitor not only chassis ambient temperature, but also individual blade temperatures (see Figure 3). CMC 3.0 also expands Lightweight Directory Access Protocol (LDAP) functionality to include support for a range of LDAP services such as Microsoft® Active Directory® directory services, Novell® eDirectory™ directory services, and open source directory services such as OpenDS and OpenLDAP.

User-driven expansion

By combining enhanced graphics and usability features with extensive user feedback, the user-driven design of CMC 3.0 helps deliver robust, streamlined functionality through an intuitive, easy-to-use interface. Building on the design process of CMC 3.0, Dell plans to incorporate the same look and feel and design methodology across the Dell OpenManage systems management suite to help simplify management, streamline operations, and enhance administrator productivity. PS

Roger Foreman is a senior product manager on the Dell OpenManage Marketing team with responsibilities for CMC firmware and management of blade servers. Previously, he led the team that created delltechcenter.com.

Learn more

Dell systems management: dell.com/openmanage

Dell PowerEdge blade servers: dell.com/blades