The Roundtable - a Year in Review

Edited by Alix Paultre

Every year around this time we look back on the year that was, trying to get a handle on the forces and technologies that shaped it. Like the proverbial blind men examining an elephant, we all come away from our experiences this year with a view dominated by our perspective.

To me, the year represented a year of growth amid uncertainty, consolidation and development, and challenges with opportunity. In the case of ECN, we continued to develop and expand our online presence by increasing the number of engineers and industry professionals expressing opinion, describing technology, or explaining solutions in our blog pages. We also added new audio podcasts to our multimedia offerings from Chris Warner, our executive editor, and Jason Lomberg, our technical editor.

On the industry side, the powerful forces of convergence continue to drive functionality into every application space and the devices that support them. The lines between a full-featured microcontroller and an SoC continue to blur as well, while the Cloud is turning out to be something that everybody has to address if they have a wireless system. Here are some other views on the year.

Hugh Lindsay, Director of Data Center Software Solutions, Offer & Strategy, Schneider Electric (www.schneider-electric.com** [1]**)

Optimizing energy in data centers has emerged as a critical concern for data center operators striving to simultaneously meet the growing demand for an expanding infrastructure of computing and communication services. This paradoxical problem is compounded by rapidly rising energy costs and overwhelming plethora of new

ways to buy and use energy – adding pressure onto managers as they aim to continuously improve operations while reducing expenses.

This type of complexity requires a new approach to Data Center Management software. The past few years have seen the evolution of two new data center management categories: Data Center Facilities Management (DCFM) and Data Center Infrastructure Management (DCIM). These new software systems represent a fundamentally new approach to understanding and managing data centers and, and provide critical insight into future needs.

Data Center Facility Management (DCFM) includes management of the core building systems that provide power, cooling and secure access to the IT environment. In comparison, Data Center Infrastructure Management (DCIM) encompasses management of the sub-set of core building systems that are closely coupled with the IT environment (rack space, final distribution of power and cooling, asset management of servers and storage equipment, etc.). Given this close coupling relationship with the IT environment, DCIM is often more closely associated with planning and change management processes related to IT service management.

When combined as an all-encompassing solution, DCFM and DCIM fundamentally upgrade the management of data centers from discrete and siloed software to an integrated system, managing IT physical systems while providing entirely new levels of functionality related to the whole facility. These include power and cooling control system monitoring and automation, tracking change and workflow, simulating future scenarios, dependency analysis and forecasting analysis of pending upgrades and/or facility modifications and often much more.

Adding further value for managers, DCFM and DCIM can be fully integrated to create a holistic knowledge base, reducing the potential for unnecessary cooling, or accidental overloading of critical systems.

As data centers become more complex, management teams most consider how to tackle evolving challenges of efficient and reliable operations – while simultaneously planning for the future. DCFM and DCIM provide powerful tools to accomplish these strategies throughout the entire facility, enabling unprecedented insight, analysis and control.

Ken Karnofsky, Senior Strategist, Signal Processing Applications, MathWorks (www.mathworks.com [2]***)***

MATLAB algorithms are ubiquitous in the design and development of electronic products across many industries, including communications, electronics, semiconductors, aerospace, and industrial automation. Historically, designers who develop algorithms in MATLAB face two growing challenges: inefficient techniques for modeling large, complex systems; and manual conversion of MATLAB algorithms into C code for prototyping and implementation of the final product. Current processes can add weeks or more of development time, and they compound the risk of design errors.

MathWorks has introduced two new technologies to address these challenges. First, System objects are MATLAB algorithms with a consistent, object oriented interface for system design. A large library of System objects for signal processing, communications, and computer vision deliver fast simulations and facilitate collaboration and reuse. Second, MATLAB Coder is a new product that generates portable and readable C code from MATLAB code. The generated code can be used to create standalone components, libraries, and programs; accelerate simulations, and implement embedded software.

These capabilities fundamentally improve the efficiency of design for algorithm-intensive systems. System objects raise the abstraction level for complex system design, and MATLAB Coder automates the integration of MATLAB algorithms into embedded software workflows. As a result, engineering teams can innovate and bring products to market faster.

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