CMTrends

News and Perspectives for CM Professionals

in this issue

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Miracle at Gate B29
"Engaged" CM in Practice

by Rick St. Germain,
CMPIC Canada

Liam

At every airport boarding area a slice of life plays out, and I can see CM in it all. It's no different here at gate B29 for the Orlando flight. People smile warmly at the young newlyweds with matching Mickey Mouse ears. A businessman with oiled hair barks out orders wirelessly, oblivious to the crowd around him. A young soldier in uniform waits anxiously to get home, away from the horrors of war. And I watch the finely-tuned boarding process unfold.

A faint siren-sound wafts from way down the hall. Not the cloying ping of electric passenger carts, but something more urgent. As it gets louder, the crowd parts to make way for a frazzled mom steering an enormous carry-on bag and a stroller occupied by a small boy wailing at the top of his lungs. Every fiber of his two-year-old frame strains against his seat harness, fuelled by the need to run and a long-overdue nap.

"Liam, please!" she begs, as she retrieves crumpled boarding passes hastily stuffed in her bag. She sighs as she reads "Zone 5" at the bottom. A steady stream of Cheerios, sippy cups and toys are offered from her bag, but to no avail. There can be no substitute for freedom.

The gate agent makes the boarding announcement for "first class passengers and gold members of Star Alliance rewards program" to begin boarding using the red executive aisle. The oily-haired businessman pushes his way forward.

At that precise moment, a flight attendant with a shock of red hair emerges from the breezeway to retrieve the passenger list from the gate agent. In a split second, she assesses the situation and strides right over to the harried mom. With a fine Irish lilt she says "Come with me, dear." As she picks up the stunned boy, he stops crying. In a heartbeat, they are checked in and down the breezeway into the plane. The waiting area breathes a sigh of relief.

When I board the aircraft, I come upon the woman and her son – he curled up against her chest wearing the flight attendant's personal headset. It's surely playing calm music since the boy and his exhausted mother are both fast asleep ... in the seat directly behind mine. This could be a very long flight.

Capability

I'm sure you've all heard that old CM saw: "Process leads and tools follow". It quite rightly challenges marketing claims that CM tool workflow equals an effective CM process. No one knows your working environment better that you do, and for true value, CM workflow must be relevant to that environment. But workflow is just part of the story.

Fundamentally, CM is about how we manage knowledge. What makes our products attractive to the marketplace is the knowledge we embed in them. We deliver our products by applying the knowledge we have of them. The travel service being delivered at Gate B29 applies knowledge about how to efficiently load people on airplanes.

This ability to apply knowledge is called capability, and it resides in people. While we're really good at applying knowledge, we're not so good at storing and communicating it. That's where process and technology come in.
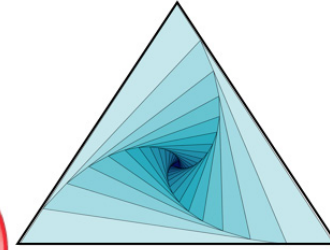
Process is a pattern of behavior, a model for applying knowledge leading to a desired outcome. It guides us to repeatably do what we found valuable before.
Technology helps us store and retrieve that knowledge, and make it easy to apply. Airlines manage lots of

complex information using sophisticated databases and software applications that assist their staff in successfully delivering their service.

There are three components here, not two. Capability, process and technology. The latter two support the first and they are all interdependent – a change in any one will necessarily impact the other two.

Engaged CM

This three-element model is what I call Engaged CM. It's nothing new, really – the best CM has always been "engaged". Now there's a name for it. Four important principles make this CM model relevant for us.

First, it's people-oriented. Capabilities are a property of people, not process. Certainly, we're guided by process and supported by technology but, in the end, people apply knowledge to do work. The flight attendant and boarding agent each use their capabilities to board passengers.

It's value-based. The value of those capabilities is relative to stakeholders – those doing the work and those receiving the service. The zone-based boarding sequence did not provide optimal value to passengers at Gate B29. The flight attendant adjusted to maximize value.

It's integrated into the worker's environment, a natural part of their workflow. The flight attendant's adjustment was as natural as breathing and she did it without hesitation.

Finally, it's learning, adapting itself to the changing needs of the work environment. CM capabilities, with supporting processes and technology, must adapt to meet changing needs. The flight attendant learned the needs of two passengers in crisis and adjusted her workflow accordingly.

Miracle
Liam did wake up on the way to Orlando and played quietly beside his mother until we landed. As I exited the plane, I approached the three flight attendants by the door.

"Could you tell your colleague, the red-haired flight attendant, that I think she did a wonderful job helping that mom and her young son back at our boarding gate?" Blank looks. "I'm sorry sir, but it's just the three of us here. The mom and boy were pre-boarded when we arrived – their boarding passes were on the seat next to them, so we let them sleep. There are no other flight attendants on this flight."

Now, I don't know if I'd recognize an Irish saint if ever I met one. Or an angel. But if I did, I'm sure she'd be a lot like that flight attendant. She practices Engaged CM. And she does, after all, wear wings.

Rick St. Germain is a CM researcher, consultant, trainer, and coach with over 25 years experience in implementing military and commercial CM processes for both hardware and software. He is President and Managing Director of Nouvella Consulting Services based in Ottawa, Canada, and is Chief of Canadian Operations for CMPIC Canada. He can be reached at rick@cmpic.com

First Master's Track II Certification Awarded!
First European to Earn a Master's Certification!

Congratulations to Lothar Tümmel of NATO for achieving his Master's Certification in Enterprise Configuration Management! Lothar was the first person to attain his Master's Certification following the Track II requirements. He was also the first European to be awarded a Master's Certification.

Lothar, along with the 70 other individuals who have attained their Master's Certifications, have completed a comprehensive set of course work that provides a thorough understanding of CM principles and implementation techniques needed to deploy CM practices throughout an enterprise/organization.

Being awarded this Master's Certification in Enterprise CM signifies that the recipient has the knowledge to explain and implement CM throughout the various functional areas within an organization.

To learn more about achieving your Master's Certification, please visit: http://cmpic.com/enterprise-configuration-management.htm.

CMTrends

2012 Conference

San Diego, CA

August 13-15

Experience the Full Spectrum of CM.

CMPIC

CMTrends

2012 Conference

Logistics

August 13th - 15th, 2012
The U.S. Grant Luxury Hotel
326 Broadway
San Diego, CA 92101

Overview

The CM Trends 2012 Conference will provide CM Professionals, like you, the opportunity to discuss relevant topics & trends in configuration management, enjoy presentations by CM experts, network with a variety of CM Professionals from leading government and commercial firms, and meet the conference keynote speaker, former astronaut, Scott Altman.

CM Trends 2012 will give attendees the opportunity to listen to CM experts discuss topics relevant in today's workplace and ask questions of the speakers each day.

This conference does not restrict itself to lecturing about one methodology. Instead, CM Trends aims to provide you with a variety of applicable information that will educate and inspire.

PLM Tool Vendors, CMPIC employees, and leading experts in the field will be present throughout this event. Use this unique opportunity to network, collaborate, and learn from each other.

Experience the full spectrum of CM at the CM Trends 2012 Conference!

Learn more at: http://cmpic.com/configuration-management-conference.htm

CMTrends

2012 Conference

Exhibitors

PLM Tool Vendors & Exhibitors will be present throughout this event. Attendees will be provided with ample time each day to view demonstrations and talk with the exhibitors.

Last Year's Testimonials

CM Trends 2011 Evaluations. All testimonials are on file at the CMPIC office.

"Very motivated to go back to the workplace and tackle some of the issues at hand."

"Yes, [I learned] a lot! Will take this info back to educate my staff and others in the company and my customer. Good learning experience - Thank you."

"Thank you, CMPIC. I can use all the info from these briefings to perform better CM within [my] organization."

CMTrends

2012 Conference

Agenda Overview

Monday, August 13th, 2012

7:00 - 8:00	Registration & Full Breakfast
8:00 - 8:15	Opening Remarks
8:15 - 8:45	"CM is in the Air" by Steve Easterbrook, CMPIC
8:45 - 9:15	Winfred Battle & James Winbush, FAA
9:15 - 9:45	"CM 101: Removing the Blinders" by Dianna Groce & Tanya Garza, MRI Technologies
9:45 - 10:00	Break & Visit with the Exhibitors
10:00 - 10:30	"Integrated Requirements Management for Systems Engineering" by Marc Lind, Aras Corp
10:30 - 11:15	**KEYNOTE**:"Reaching for the Stars: How CM Makes it Happen" by former NASA astronaut, Scott Altman, ASRC Research & Technology Solutions
11:15 - 11:45	Q&A with Morning Speakers
11:45 - 1:00	Lunch Break (on own)
1:00 - 1:30	Alan Kiraly, Bentley
1:30 - 2:00	"From Bouncing Bomb to eBOM: A Historical Perspective on Product Definition" by Paul Brouwers, Air Warfare Destroyer Systems Center
2:00 - 2:30	Break & Visit with the Exhibitors
2:30 - 3:00	"CM Failure Analysis" by Dane Dungee, Harris Corp.
3:00 - 3:30	"Interface Management in a System-of-Systems Environment" by Adam Prem & Renee Earhart, Booz Allen Hamilton
3:30 - 4:00	Q&A with Afternoon Speakers
4:00 - 5:00	Exhibitor Showcase

CMTrends

2012 Conference

Agenda Overview

Tuesday, August 14th, 2012

7:00 - 8:00	Full Breakfast
8:00 - 8:15	Opening Remarks
8:15 - 8:45	"Summer vs Winter Grade: What to Expect as your Wallet Dries up and the Carbon Footprint is Decreased" by Tina O'Dell, QinetiQ North America
8:45 - 9:15	"Does CM Work During Rapid Company Growth?" by David Lien & Marcia Gaertner, Nexteer Automotive
9:15 - 9:45	"Joint Strike Fighter (JSF) and PLM: An Overview" by David Dorfmueller, Intergraph
9:45 - 10:00	Break & Visit with the Exhibitors
10:00 - 10:30	"CM, PLM, and Systems Engineering: What do all of these have in common?" by Peter Biello, CIMData
10:30 - 11:00	"CM in a Pure IT Environment" by Cary Rosson, InDyne Inc.
11:00 - 11:30	"CM as a Service (CMaaS)" by A. Larry Gurule, Imagine Technology
11:30 - 11:45	Q&A with Morning Speakers
11:45 - 1:00	Lunch Break (on own)
1:00 - 1:30	Lisa Fenwick, CMStat
1:30 - 2:00	"The Configuration Management Process throughout a Systems Engineering Lifecycle" by Giany Bruno, Mectron Engenharia Indústria e Comércio S.A.
2:00 - 2:30	Break & Visit with the Exhibitors
2:30 - 3:00	"Traceability in Software CM" by Joe Farah, Neuma
3:00 - 3:30	"What Happens When We Don't Use Proper CM" by Ron Kunz, L-3 Com.
3:30 - 4:00	Q&A with Afternoon Speakers
4:00 - 5:00	Exhibitor Showcase

CMTrends

2012 Conference

Agenda Overview

Wednesday, August 15th, 2012

7:00 - 8:00	Full Breakfast
8:00 - 8:15	Opening Remarks
8:15 - 8:45	"Data Management: What's Next?" by Cynthia Hauer, ACDM
8:45 - 9:15	Presentation to be announced
9:15 - 9:45	Danielle Yockman, QinetiQ North America: San Diego
9:45 - 10:00	Break & Visit with the Exhibitors
10:00 - 10:30	Jerry Pyka, University of Houston
10:30 - 11:00	Mitch Kaarlela, Lockheed Martin
11:00 - 11:30	Presentation to be announced
11:15 - 11:45	Q&A with Morning Speakers
11:45 - 12:00	Conference Close

Optional (additional fees apply)

Wed.	1:00 - 5:00	Course 6: "ANSI/EIA-649B Principles & Applications" certification course, *or* Course 7: "CM Assessor" certification course, *or* Course 9: "CM Standards & Practices Update" course
Thur.	7:30 - 8:00	Full Breakfast
	8:00 - 5:00	Course 6: "ANSI/EIA-649B Principles & Applications" certification course, *or* Course 7: "CM Assessor" certification course, *or* Course 9: "CM Standards & Practices Update" course
Fri.	7:30 - 8:00	Full Breakfast
	8:00 - 5:00	Course 6: "ANSI/EIA-649B Principles & Applications" certification course, *or* Course 7: "CM Assessor" certification course, *or* Course 9: "CM Standards & Practices Update" course

Please see the CM Trends webpage for the most current CM Trends information:
http://cmpic.com/configuration-management-conference.htm

CMTrends

2012 Conference

Registration & Fees

Option 1: Conference Package   **$895.00 USD**

CM Trends Annual Conference - includes all conference sessions, daily hot breakfast, & coffee breaks.
2.5 days, Monday - Wednesday

Option 2: Conference plus one Course Package   **$1,595.00 USD**

CM Trends Annual Conference as shown above plus one post-conference course: Course 6 "ANSI/EIA-649B", Course 7 "CM Assessor", or Course 9 "CM Standards & Practices Update".
Regular course fee: $1,275 - you save $575.
5 days, Monday - Friday

Option 3: Post-Conference Course Only   **$995.00 USD**

Can't make it to the conference? This fee applies to any one of the following courses held in after the conference: Course 6 "ANSI/EIA-649B", Course 7 "CM Assessor", or Course 9 "CM Standards & Practices Update".
Regular course fee: $1,275 - you save $280.
2.5 days, Wednesday - Friday

Register for the CM Trends 2012 Conference here: http://cmpic.com/registration.htm or contact the CMPIC office at (434) 525-8648, info@cmpic.com.

Hotel Reservations

U.S. Grant Luxury Hotel

326 Broadway
San Diego, CA 92101
(866) 837-4270
www.usgrant.net

$135.00 per night, per room.

Make your sleeping room reservations by calling (866) 837-4270 and mentioning "CMPIC CM Trends".

This discounted rate will not be accepted after Friday, July 13, 2012.

What is Build Engineering?

by Bob Aiello, CM Crossroads

Hardware Configuration Management (CM) involves assembling numerous parts with special attention to the interfaces between each component. This may include configuration items (CIs) from integrated circuits (chips) to screws. Medical devices, nuclear power plants and airplanes all involve advanced hardware configuration management processes and procedures. Engineering as a discipline focuses on defect free and efficient assembly of parts to create hardware components. But software is replacing many hardware CIs and hardware engineers need to expand their skills to be able to manage the build, package and deployment of hardware and software (e.g. firmware) components. This article will help you get started with being able to handle the software and firmware required to build your next nuclear power plant or submarine.

Building Software

Build engineering involves compiling source code into runtime binaries. In hardware engineering this usually involves taking C language source code and compiling into object code (including libraries) and executable binaries. There are actually many computer languages that can be used to build firmware including Ada and even Java. There are several build languages that are commonly used including Ant, Maven, Make and also MS Build on the Microsoft platform. In my experience, firmware is usually built using procedures written in GNU Make or often homegrown build tools (especially when memory is limited). I have written many articles on how to master all of these build tools and if you drop me an email, I will be glad to send you links to the articles that match your interests. Build engineering is essential and selecting the correct versions of source code is the first step.

Source Code Management

Hardware engineers know that selecting the correct size screw matters. Software engineers know that selecting the correct versions of each piece of software is essential as well. Whether you are working with C language source code, configuration files or XML (to represent data or configurations), software involves a fair amount of complexity. It is very common for software components to consist of thousands of software configuration items and most developers work efficiently within the development environment without understanding all of these details. Source code management allows the developers to identify the exact versions of each piece of code using a procedure that is called baselining. In practice, this often involves tagging or labeling thousands of files stored in a source code repository. The result of this effort is known as a tagged or labeled baseline of the code. The build engineer then independantly builds the entire release from the beginning, using this baseline. This is not efficient, but often required by federal laws.

[1] Aiello, Robert and Leslie Sachs. Configuration Management Best Practices: Practical Methods that Work in the Real World. Addison-Wesley, 2010.

The Independent Build

There are many industries where regulatory authorities require that the software components be independently built by a build engineer. In practice, there is usually a specific requirement for a separation of duties, which means that the person who performs the independent build cannot report to the same management as the developer or engineer who wrote the code. This requirement is intended to avoid any undo influence to bypass the rules. I have had more than one time in my career where I was pressured to bypass the rules and I can personally attest to the importance of having a separation of duties. The independent build also results in higher quality.

Testing the Build

Whenever I independently build a release, I always find that the developer forgot to check in all of the required pieces of code. Independently building the code tests to ensure that all of the artifacts are, in fact, secured and baselined in a source code repository. In practice, it usually takes two or three attempts before the developers are able to identify all of the code dependencies. My job is to work with them to get the code secured and automate the entire build process. We also need to ensure that every configuration item can be uniquely identified.

Version Identification

The automated build should ensure that each configuration item contains an embedded and unique immutable version ID. Building identifiers into configuration items is easier than it sounds and you can contact me for articles on specific procedures for Ant, Maven, Make or MS Build. Occasionally, you may get a library or other binary that you cannot stamp with a version ID. In future articles, I will discuss using cryptography to write MAC SHA1 or MD 5 hashes to identify configuration items. The next step is to package the release for deployment.

Release Engineering

Release engineering involves taking all of the components created in the build process and packaging these configuration items so that they can be deployed.

The release package also includes a manifest (similar to the bill of materials or BOM). The release package must have a unique identifier so that it can be easily identified and avoid human errors (e.g. deploying the wrong release). Don't forget to create an automated procedure to verify that all of the configuration items have been correctly deployed in what is called a configuration audit.

Conclusion

Hardware engineers may be called upon to help build software components including firmware. Many of the concepts involved are very similar in software engineering. It is very a good idea to get more familiar with automated software builds and release engineering. Feel free to contact me to discuss training and resources for learning how to leverage your hardware CM expertise in the growing software engineering field!
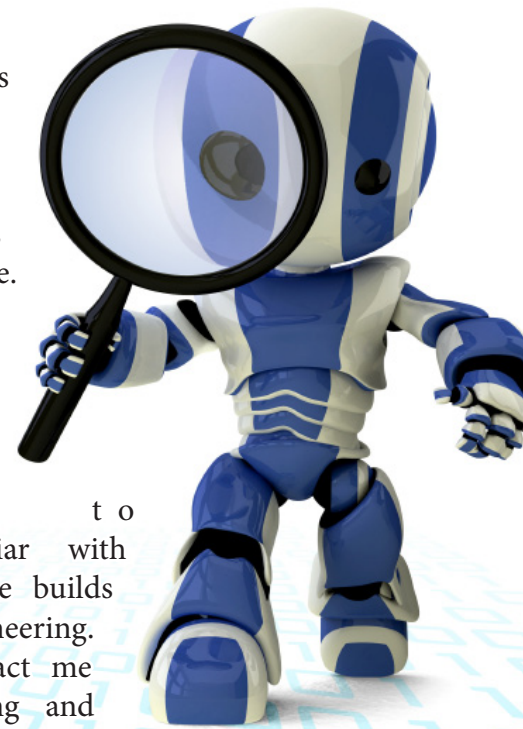
Bob Aiello is a consultant, editor-in-chief for CM Crossroads, and the author of Configuration Management Best Practices: Practical Methods that Work in the Real World, Addison-Wesley Professional. Mr. Aiello has more than twenty-five years' experience as a technical manager in several top NYC financial services firms where he had company-wide responsibility for CM, often providing hands-on technical support for enterprise source code management tools, SOX/Cobit compliance, build engineering, continuous integration, and automated application deployment. Bob has served as the vice chair of the IEEE 828 Standards working group (CM Planning) and is a member of the IEEE Software and Systems Engineering Standards Committee (S2ESC) management board. Mr. Aiello holds a Masters in industrial psychology from NYU and a B.S. in computer science and math from Hofstra University. You may contact Mr. Aiello at bob.aiello@ieee.org, link with him at http://www.linkedin.com/in/bobaiello.

Quilting Capabilities

by A. Larry Gurule

"Quilt" is a wonderfully flexible word. First, it can be a verb (as in "to make a quilt") or a noun (the product of quilting). Likewise, because many quilts are patchwork, quilting can imply both horizontal and vertical processes. The horizontal process is stitching together pieces to make a layer. The vertical is stitching together layers to make the quilt.

The quilt is a useful metaphor in thinking about cloud services in an enterprise. Each business or agency needs a certain set of activities to be performed in order to carry out its mission. Managers are already accustomed to contracting with vendors for certain activities and performing others in house.

If we think of an activity as a service, it's an easy transition to thinking about services delivered from the cloud. As the cloud matures the range and depth of the services it offers will become more granular and discrete. Users of these services will need to consider which services they are willing to perform themselves and which will be obtained "as a service."

To think clearly about these issues, it will become paramount for organizations to fully understand their existing processes and the capabilities that define them. Something called the Model Based Enterprise (MBE) is tailor made for this purpose. MBE, according to model-based-enterprise.org, is "a fully integrated and collaborative environment founded on 3D product definition detailed and shared across the enterprise to enable deployment of products from concept to disposal." In my experience, a lot of people who could benefit from MBE don't know about it. Among those who do, it tends to become an obsession. I'll discuss MBE at greater length in a future post. For now, I'll return to the title of

this post, "Quilting Capabilities."

The processes used to execute the services that enable mission performance are comprised of discrete capabilities patched together to provide value. As more cloud-based services become available, prepared organizations will be able to identify what services will affordably satisfy their process capability requirements. Then, with confidence, they can "quilt" (integrate or stitch) those cloud service capabilities together with their existing processes in a way that provides a better user experience, more efficient and effective operations, and lower cost.

One way or another, companies and government agencies will need to identify and understand their process-enabling capabilities if they are to take advantage of cloud services as they become available and extract the greatest value from the cloud.

A. Larry Gurule is a Principal with Computer Sciences Corporation, as well as a CMPIC Associate. Mr. Gurule has over 25 years of hands-on and leadership experience for a successful list of clients he has helped become more operational efficient and effective. Larry has also owned and/or held senior level positions in manufacturing, software and service based businesses, as well as lectured to and/or consulted with hundreds of individuals from Fortune 500 companies on process improvement and enterprise IT implementation initiatives. Larry holds a Mechanical Engineering degree from the University of Colorado and is a CMPIC and CMII Certified Professional.

CM Certification Courses

- **CM Principles & Implementation Certification Series, Courses 1 - 4**

  Upcoming Series:

  Houston, TX starting May 14, 2012

  Salt Lake City, UT starting May 21, 2012

  Less than 2 Weeks! Orlando, FL July 10 - 19, 2012

  Andover, MA starting Aug 27, 2012

  Ottawa, ON Canada starting Sept. 10, 2012

  Bellevue, WA starting Sept. 24, 2012

  Minneapolis, MN starting Oct. 9, 2012

- **CM for IT & Software Development Certification, Course 5**

  Stafford, VA April 30 - May 3, 2012

  San Diego, CA Nov. 12 - 15, 2012

- **ANSI/EIA-649B Principles & Applications Certification, Course 6**

  Stafford, VA May 14 - 16, 2012

  San Diego, CA August 15 - 17, 2012

  Orlando, FL April 10 - 12, 2012

- **CM Assessor Certification, Course 7**

  Stafford, VA July 16 - 18, 2012

  San Diego, CA August 15 - 17, 2012

- **SCM: Strategies, Techniques and Tools Certification, Course 8**

  Stafford, VA July 30 - August 2, 2012

  San Diego, CA Oct. 22 - 25, 2012

- **CM Standards & Practices Update, Course 9**

  Seattle, WA June 25 - 27. 2012

  San Diego, CA August 15 - 17, 2012

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