CA Mainframe Chorus

The Music Keeps Getting Better

With the introduction of Version 2.0, CA Technologies continues to build on its innovative CA Mainframe Chorus technology. The company continues to improve the foundational technologies of CA Mainframe Chorus while adding new support for mainframe staff based on their operational domains.

CA Mainframe Chorus provides a unified workspace whose elements can be organized and customized to reflect the specific role, or work requirements, of a mainframe staffer's domain of responsibility. The first Chorus "role" encompassed DB2 database administration, providing a workspace where the tools used by DB2 Database Administrators (DBAs) could be accessed and operated in a more coherent way to maintain and troubleshoot database software and manage workloads and operational processes. In 2011, two additional roles were delivered to the market – one for mainframe storage administration, the other for mainframe security and compliance administration.

Along the way, CA Mainframe Chorus is yielding even more benefits than its designers anticipated. With its ability to share domain expertise and access, it is enabling users to bridge temporary gaps in staff expertise brought about by retirement or job change. And its flexible views of workload and operations environments are enabling multi-tenant shops to divide and present resources and services by client, and to segregate the activities of one client from others who are using common infrastructure.

Conclusion: With CA Mainframe Chorus, CA Technologies has written a tune that keeps improving with time.

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BACKGROUND

In 2009, industry voices insisted that the mainframe experience needed to change in order to remain relevant to business computing needs in the future. Key challenges were identified as an aging mainframe operations workforce, the blurring of traditional roles and responsibilities of mainframe staff, and the diminishing appeal of the platform to up-and-coming technologists -- especially given the perpetuation of a text-based, green-screen terminal in mainframe environments that was out of step with contemporary methods and more modern graphical user interfaces that dominate distributed computing.

To its credit, the technology of the mainframe remained sound, with engineering advancements maintaining and validating the mainframe as the most efficient computing platform in the industry from the standpoint of both performance and agility. Moreover, mainframes sported an economic footprint that made them among the most cost-effective solutions for contemporary business information processing.
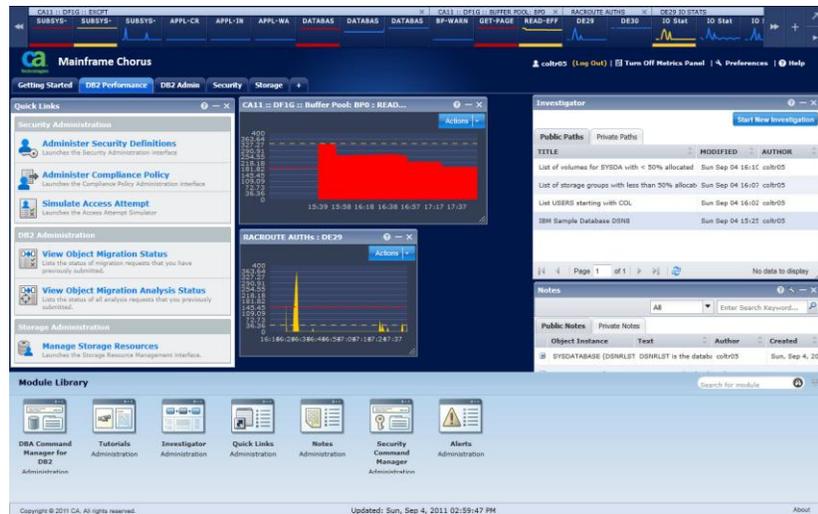
Even trends in distributed computing ultimately validated the mainframe model. As server virtualization became a mantra in distributed computing, mainframe advocates were quick to point out that partitioned application hosting and multi-tenancy had been hallmarks of mainframe computing for nearly 30 years. The mainframe offered better cost metrics for server consolidation than did its x86-based rivals, as well as better security, workload insulation, and service level predictability. The announcement and delivery of zEnterprise architecture by IBM, combining server blades with mainframe platforms, extended the reach of mainframes to host distributed server workloads while providing a scheme for common management and operational predictability.

"Cloud technology," another hot button in IT-speak, also underscored the value of the mainframe. As cloud technology, a metaphor for on-demand service-oriented infrastructure and application delivery, took hold in the dialog around next generation computing, it took little time for an obvious truth to be stated: by design, a mainframe is a cloud – especially given its ability to provide multi-tenant hosting, to allocate and de-allocate resources readily to meet changing business requirements, and to provide effective security and service-level controls.

Thus, the simple question to be answered by business technology planners increasingly comes down to the relative weight that should be placed on "human factors" confronting mainframes on the one hand, and the superior technology and economic value case for mainframes on the other. CA Mainframe Chorus looks increasingly like a technology that could tip the scales in favor of the robust mainframe platform.

Following the announcement in May 2010 of a visionary initiative to re-shape the mainframe experience so that it would fit better the needs of contemporary business IT operations, CA Technologies delivered its innovative CA Mainframe Chorus technology in the later part of that year. The company continues to improve the foundational technologies of CA Mainframe Chorus while adding new support for mainframe staff based on their operational domains.

CA Mainframe Chorus provides a unified workspace whose elements can be organized and customized to reflect the specific role, or work requirements, of a mainframe staffer's domain of responsibility. The first Chorus "role" encompassed DB2 database administration, providing a workspace where the tools used by DB2 Database Administrators (DBAs) could be accessed and operated in a more coherent way to maintain and troubleshoot database software and manage workloads and operational processes. In 2011, two additional roles were delivered to the market – one for mainframe storage administration, the other for mainframe security and compliance administration.

While the roles supported by CA Mainframe Chorus are growing in number, the core technology of the Chorus workspace is the same and serves the same basic objectives:

- To simplify and streamline IT staff tasks and workloads that have come to be "supported" by myriad and poorly integrated software tools and to enable greater operational efficiency;

- To provide a flexible means to customize and codify workflows so that they better reflect contemporary work procedures and responsibilities and enable experienced staff to hand off routine tasks to novices and trainees.
- To establish a foundation for training next-generation IT staffs that is better suited to their understanding and experience of computing generally.

Along the way, CA Mainframe Chorus is yielding even more benefits than its designers anticipated. With its ability to share domain expertise and access, it is enabling users to bridge temporary gaps in staff expertise brought about by retirement or job change. And its flexible views of workload and operations environments are enabling multi-tenant shops to divide and present resources and services by client, and to segregate the activities of one client from others who are using common infrastructure.

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KEY CA MAINFRAME CHORUS DEVELOPMENTS

CA Mainframe Chorus should not be compared with technologies from other vendors in prior years ranging from workflow engines to screen-scraping graphical user interfaces (GUIs). Workflow management products that wedded users to a particular vendor's methodology or process model produced generally unfavorable results. Too often, vendor workflow models did not match the needs of business IT operations and entailed significant retraining of administrators.

Similarly, the mainframe GUI products that appeared in the market several years ago, claimed to "integrate" mainframe applications and utilities for greater accessibility and ease of use. The results experienced by users, however, were generally negative. While the text interfaces of different utilities could be "scraped" and represented as part of a decorative and intuitive interface, this did not reduce work for the mainframer and too often ran afoul of changes and updates made by vendors of the underlying applications.

Conceiving of CA Mainframe Chorus as yet another workflow engine or GUI is incorrect. From the standpoint of its presentation layer, CA Mainframe Chorus creates an environment in which applications and utilities are integrated at an object level. Central to the Chorus platform is an innovative "investigator window" that enables rapid browsing through large collections of intuitive objects, including users, databases, storage volumes, security reports, etc. A user can access all objects needed to perform an action such as troubleshooting, monitoring, checking status, or issuing a command. For experienced mainframers, a "Command Manager" is also provided, enabling

"legacy" or "direct access" options that preserve key elements of the existing and familiar interaction model.

CA Mainframe Chorus does not enforce externally-developed workflows, but rather enables work performed to resolve an issue or perform a task to be saved and stored for later reference or to become part of an operational knowledgebase that can be used as reference in future work or to facilitate knowledge transfer to novice mainframers.

CA Mainframe Chorus delivers an application access and integration method that works with CA Technologies products, and other vendors are beginning to enable their products for use with CA Mainframe Chorus as well. This growing ecosystem of application and utility software support for the CA Mainframe Chorus workspace bodes well for driving down the complexity of operating multiple standalone utilities on multiple screens, making IT staff more productive. Moreover, the ability to create a customized workspace that can be shared with a co-worker or manager helps to improve the efficiency of collaborative endeavors.

Ultimately, one of the goals of CA Mainframe Chorus technology is to provide a means for mainframe experts to hand off routine tasks to more novice personnel, thereby optimizing knowledge resources while training next generation mainframe masters. This comes at exactly the right time, since the traditional model of mainframe training – in the main, an apprenticeship model of skills training and knowledge transfer – has not (and quite possibly cannot) produced qualified staff in sufficient number to replace an aging workforce.

Moreover, as a practical consequence of the aging mainframe workforce and of economic belt-tightening in many shops, fewer staffers are now required to do the work of many. This means that older mainframe job descriptions and their associated domain expertise have begun to blur as a function of task consolidation. A new workspace, capable of integrating the functions and tools that were once divided deliberately among a cadre of experts but are now increasingly shouldered by fewer cross-domain staff, is a must-have. So, the time has never been better for CA Mainframe Chorus.

NEW ROLES, SAME RULES

The important thing to keep in mind is that all users of CA Mainframe Chorus interact with the mainframe environment using the same workspace components. Application and utility interfaces, as well as data, are presented in a familiar and convenient way. Objects can be leveraged by any user, given the proper security and access permissions are obtained.

From this robust and flexible meme, customized workspaces can be developed in CA Mainframe Chorus to fit the "role" of the end user. CA Technologies has worked diligently with its customers to define the basic capabilities required to perform a given role, such as DB2 Database Management. So, some objects, utilities and applications are already identified in each role-based workspace. However, workspaces are also high customizable, so with little effort, the user can modify the CA Mainframe Chorus workspace to fit his or her particular requirements.
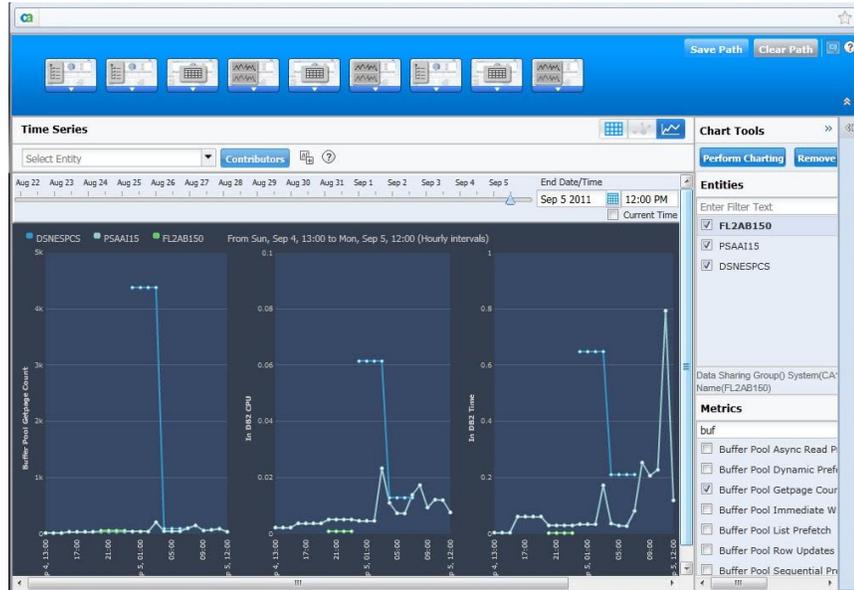
DB2 Database Management (DBA) Role Expanded

Arguably, DBAs handle the preponderance of workload traditionally assigned to mainframe platforms. Large scale databases are the hallmark of mainframe computing and the database administration function was a logical choice for the first CA Mainframe Chorus role, introduced in 2010. This role was discussed in an earlier paper, but 2011 saw the introduction of a 2.0 Version of CA Mainframe Chorus for DB2 Database Management.

The expanded DBA role added capabilities requested by early adopters of the product to better reflect their work requirements. DBAs previously requested security and storage services from domain managers dedicated to those resources and functions, but in the current reality of staff consolidation, the capability for the DBA to do his or her own provisioning and troubleshooting improves operational efficiency.

Other functions such as advanced filtering, object migration support and the delivery of real-time statistics for DB2 objects have also been well received. Filters can be used with any DB2 object attribute, streamlining the process of collecting information and improving the focus of activities. To migrate a set of DB2 objects, CA Mainframe Chorus now supports the ready selection of related object types and will generate the scripts required to perform migrations automatically. Real-time statistics can also be accessed for any objects stored in the investigator tree, enabling at-a-glance status checks on the activity of an object or group of objects.

An additional innovation is the addition of CA Detector Keys, which provide a means to spot and report performance issues as they occur.   For analyzing performance issues

over longer periods of time, CA Mainframe Chorus now features time series charting. These functions can be real time savers in the tedious task of navigating performance data to detect and resolve the causes of user-reported performance issues.

The DBA will also be delighted with the integration that CA Technologies is making between CA Mainframe Chorus and Teiid, a data virtualization system that enables applications to use data from multiple, heterogeneous data stores. In practical terms, this avails the DBA with access to data sources ranging from VSAM, IMS, DB2 and Datacom to Microsoft Excel, and sets the stage for on-the-fly development of customized programs, utilities and reports to correlate these data sources for more useful and concise information. Clearly, this is a strategic direction in CA Mainframe Chorus development, enabling a standards-based mechanism for information sharing and integration that does not require data replication and storage.

New Roles Introduced: Security and Compliance Management and Storage Management

The expansion of the capabilities of the DBA role to include security and storage administration functions is actually a subset of a much larger expansion of CA Mainframe Chorus capabilities. The 2011 version saw the addition of two additional roles developed to meet the needs of staff who were directly responsible for Security and Compliance Management and for Storage Management.
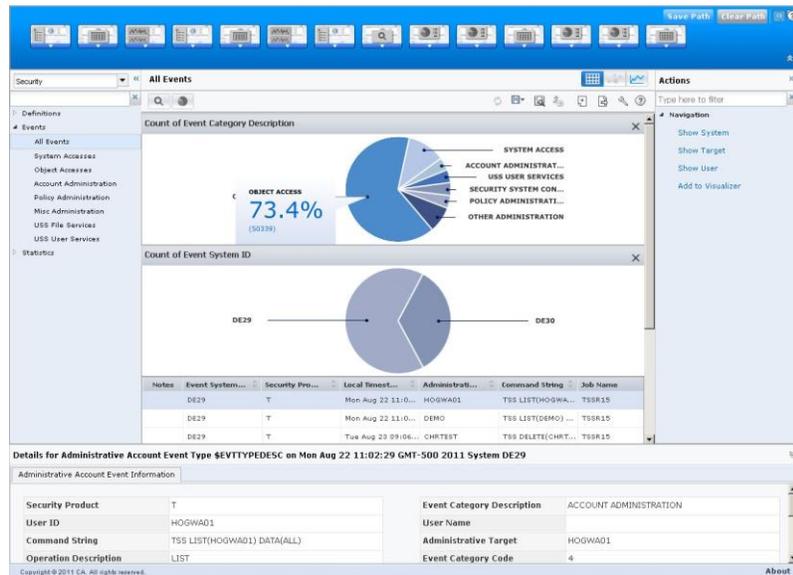
Security and Compliance Management Role

CA Mainframe Chorus for Security and Compliance Management reflects a requirement expressed by many customers for improvements and streamlining in security and

compliance administration, especially in the face of increasing security threats and burgeoning mandates in many industries focused on data protection and privacy. Security is becoming "everybody's job" and the tell-tale signs of improper breaches are often evident to DBAs and application developers and to network administrators in the normal course of day-to-day operations.

CA Mainframe Chorus for Security and Compliance Management does not replace conventional security data models or software, but works with and extends those models and functions to facilitate collaboration between security managers and their "eyes and ears" in operations that moves security closer to an active and real-time status. Examples of how CA Mainframe Chorus helps are numerous:

- By extending ACF2 and Top Secret's Compliance Information Analysis (CIA) database to include up-to-the moment cross-system state information, CA Mainframe Chorus facilitates the ability to compare the security implementations across multiple security files. This information can then be joined to Compliance Manager event data to show the user name in place of the cryptic 7 byte user id.

- By integrating new change monitoring, data warehouse, policy and alert definition, and log stream collection engines and functions into a coherent presentation, the new Chorus role improves event handling in z/OS environments and helps organizations achieve and maintain compliance with the most demanding new mandates and regulations.
- By providing security managers with correct and up-to-the-minute reports that can both be saved and stored as queries and as batch processes, CA Mainframe Chorus for Security and Compliance simplifies the report development and distribution process. Moreover, Chorus extends security data models by
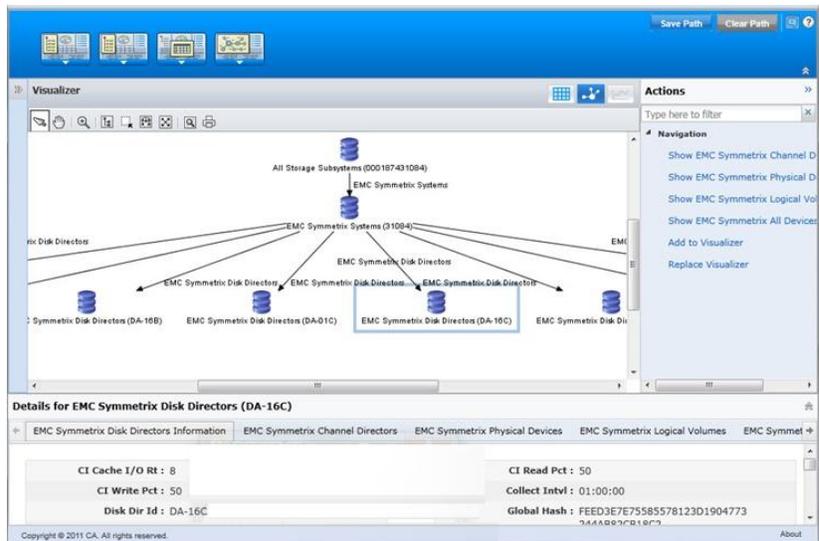
enabling business descriptions of users, objects and events in their secure environments, setting the stage for the production of reports that are less cryptic and easier for end users and business stakeholders to understand.

As with the other roles, CA Mainframe Chorus for Security and Compliance Management leverages the CA Mainframe Chorus platform to facilitate knowledgebase creation, collaboration and training.

Storage Management Role

The storage management role has implemented a robust feature set that delivers considerable business value. CA Mainframe Chorus users can set up pre-defined monitors and alerts to prevent application downtime linked to storage availability or performance. Solution-based storage analysis capabilities also provide much-needed assistance to staff and planners who seek to improve storage infrastructure reporting accuracy and depth.

CA Mainframe Chorus for Storage Management also provides a Visualizer capability that can present storage topology in a graphical, easy-to-understand way. Both novice and experienced staff can view the storage infrastructure in whole or in part to understand its characteristics, available resources, and current status. This is supplemented by a robust set of historical trend analysis graphs and reports that can be accessed to see the impact of workload and infrastructure changes on application performance.

The workspace is web-browser based so that administration functions can be accessed from any browser-based client with secure access to internal networks. And, of course, the entire workspace is built on a common CA Mainframe Chorus platform, facilitating collaboration and knowledge management. CA Mainframe Chorus for Storage Management is fully compatible with CA Vantage Storage Resource Manager, which provides much of the data that is collected and presented using CA Mainframe Chorus

technology. Going forward, we look forward to the integration of CA Mainframe Chorus with other storage management software and utilities.

CONCLUSION

The expanding capabilities of the core CA Mainframe Chorus platform, as well as the addition of new roles that provide the means for both optimizing the efficiency of skilled mainframers and the training of novices, are changing the relative weighting of human factors versus platform efficiency in the decision to implement or stay the course with mainframes. CA Technologies has taken a visionary and much needed course toward modernizing the mainframe experience that is already paying dividends for early adopters.

Ideally, the work of developers at CA Technologies will be met by a growing willingness of other independent software developers to extend and diversify the number of utilities and resources that can be integrated with the platform. It would be in the interest of the entire ecosystem of mainframe product vendors to join this particular chorus.