CLABBY ANALYTICS

Research Report

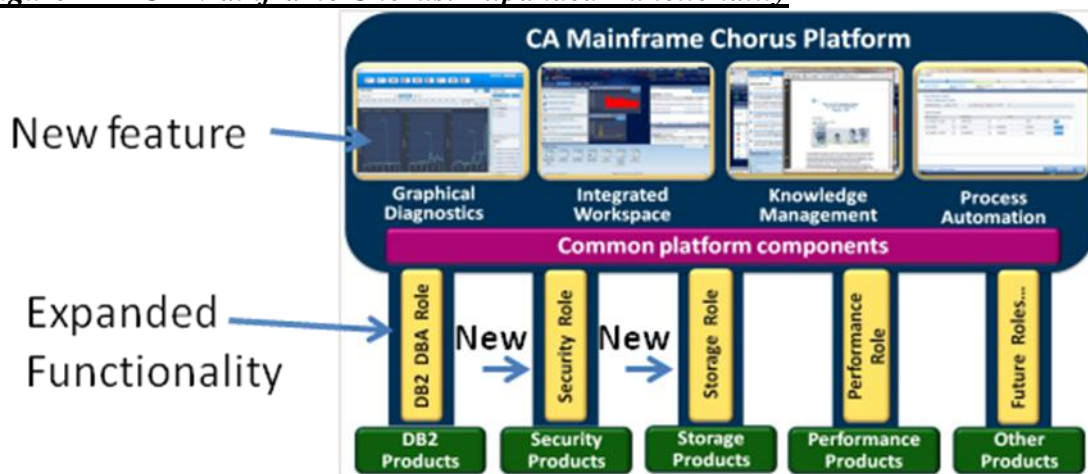## CA Technologies: Delivering on the Promise of
CA Mainframe Chorus:

Introduction

Just over a year ago, we wrote a report that described CA Technologies' CA Mainframe Chorus as "one of the most impressive mainframe management innovations that *Clabby Analytics* has ever seen." What we like most about this product is its intuitive user interface — it offers mainframe managers and administrators a status view of systems health, a work area, and a knowledge database (to help operators find answers to their questions, or to provide instructions for executing procedures). Further, we like the way CA Technologies has automated certain manual functions, reducing management complexity and the time it takes to execute some tasks (in some cases from several hours to just minutes).

> *For readers not familiar with this product offering, CA Mainframe Chorus is an integrated, role-based, collaborative, highly-visual workspace that automates certain mainframe management functions, and can also be used to capture mainframe management knowledge. To us, this is exactly the type of environment needed to help grow the next generation of mainframe managers and administrators.*

The new news since our last report is that CA Technologies has expanded its CA Mainframe Chorus role-based offerings — and has improved its user interface with graphical diagnostics. Last year, CA Mainframe Chorus offered support for a single role: DB2 database management. But this year, it includes expanded database management/-administration support — as well as support for security/compliance management and storage administration. And, in the future, we expect that CA Technologies will add tools for improving mainframe performance and add additional roles under the CA Mainframe Chorus umbrella (illustrated in Figure 1).

Figure 1 — CA Mainframe Chorus: Expanded Functionality

Source: CA Technologies, January, 2012

What is CA Mainframe Chorus?
CA Mainframe Chorus is a role-based mainframe management environment. It displays system status; it provides a work area for solving problems — and most importantly, it hosts a knowledge database. This product is graphically oriented, so it simplifies daily tasks and improves productivity for experienced mainframe staff and appeals to the next generation of systems managers who have grown up using modern graphical interfaces. It streamlines management tasks by automating certain functions such that systems programmers, database administrators, security administrators, etc. do not have to march through numerous manual steps to accomplish a task. It also captures knowledge (current generation mainframers can capture and annotate workflows that less experienced technologists can view in order to learn how to solve problems) — enabling novices to learn how to solve problems quickly. And by capturing these workflows, knowledge of mainframe experience can be leveraged by colleagues and can be passed in a systematic manner from generation to generation.

What makes Chorus extra-special is its intuitive design. CA Technologies hired a well-known product design firm that counts amongst its credentials design work with Apple. This firm was asked to observe how various mainframe managers go about their day-to-day job — and then recommend how tools could be designed to help simplify their management tasks. What CA Technologies learned was mainframe systems managers and administrators spend a lot of time bouncing from one tool to another looking for information in order to find and solve problems. CA Technologies also learned that these managers and administrators are constantly interrupted when trying to complete management tasks. Further, many of the tools that they use are command line interface-based (character based, green screen tools) — making it difficult to quickly recognize a given problem (as compared to a graphically driven tool). And, finally, CA Technologies learned that the knowledge needed to solve a particular issue is often dispersed in manuals around an office — or written on yellow sticky notes that adhere to terminals — or contained in the mind of a given manager or administrator. This knowledge needs to be extracted from manuals, from personal notes, and from experienced individuals and then be made accessible electronically to mainframe managers trying to solve specific issues.
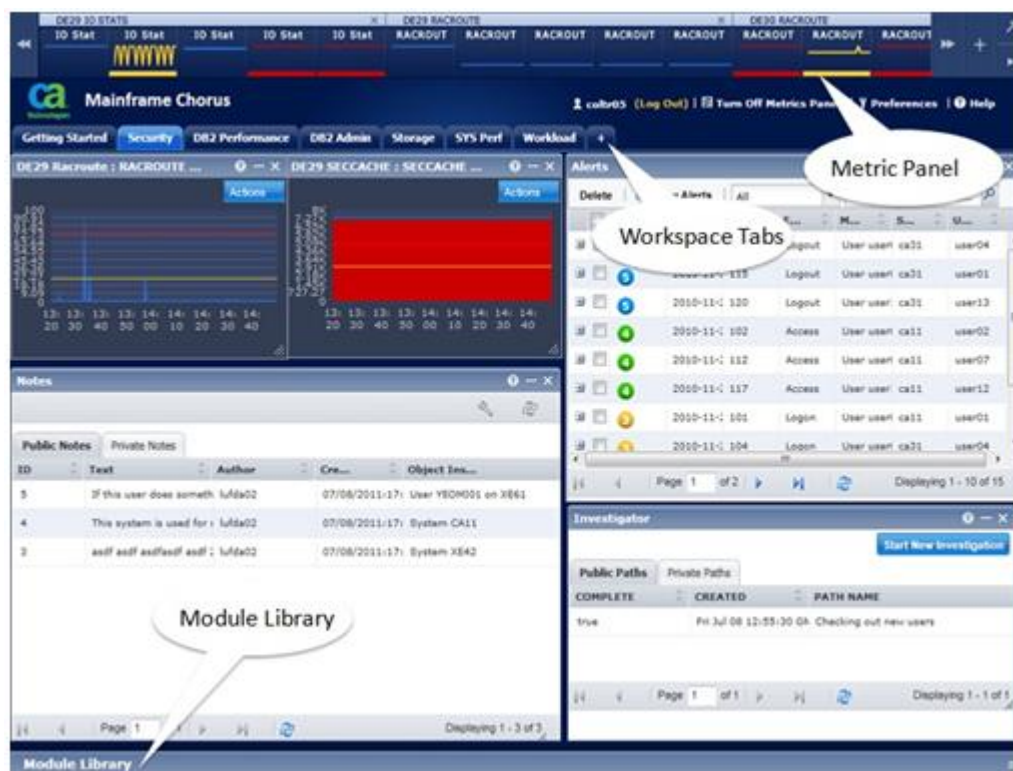
CA Mainframe Chorus addresses these challenges by providing a new way to manage mainframes. The biggest difference between the current crop of mainframe management tools and CA Mainframe Chorus is the product's visual, Web 2.0 orientation. Chorus provides a revolutionary workspace environment that helps mainframe managers isolate problems; quickly bring the resources needed to solve a problem to bear; record the workflow needed to solve the problem (such that it can be dealt with even more expeditiously should it reoccur); and it provides a knowledge base to help mainframe managers and administrators find solutions quickly. Further, CA Mainframe Chorus provides facilities that allow mainframe managers and administrators to customize their workspace such that they can view events and structure paths in a manner that makes sense to a given manager. For instance, a mainframe manager can create customized visualizations of alerts or actions — visualizations that are important to a specific person's daily activities.

CA Mainframe Chorus is visually pleasing, simple to use, and it automates manual tasks — helping to improve operational efficiency. Further, this product is an excellent starting point for the formal dialog that needs to take place between the current generation of mainframe managers and the new generation — a launch pad for transitioning mainframe management skills to next generation, graphically-oriented mainframe managers and administrators.

A Closer Look at the CA Mainframe Chorus Design

Figure 2 provides a view of how the CA Mainframe Chorus workspace actually works. Using Chorus, a user can, at a glance, quickly determine where problems may be found (see the metric panel on the top of the illustration). That user can address those problems by conducting further analysis by clicking on modular functionality within the workspace. The organization of the workspace feels natural to the user, because they can organize the layout into tab(s) that made sense to them (for example, Getting Started, Security, DB2 Performance, etc. shown below), and includes only the functionality the user needs (for example, Alerts, Notes, and Investigator shown below) from the Module Library) Finally, a manager or administrator who needs help can find additional, context-sensitive information related to problem solving — or even collaborative help — by clicking the *help* question mark.

Figure 2 — CA Mainframe Chorus: Elegant, Simple Design

Source: CA Technologies, January, 2012

What is New in CA Mainframe Chorus

Last year we described the first role that CA Mainframe Chorus would support — that of DB2 Database Management. And we mentioned that CA Technologies intends to regularly

introduce new roles such as security administration, storage management, workload management, operations management, performance management, and so on, as Chorus continues to develop. This year, CA Technologies followed-up on its promise to introduce new roles — this time adding *security and compliance management* as well as the *storage management* roles to its CA Mainframe Chorus management portfolio.

What's New in CA Mainframe Chorus DB2 Database Management?
Last year, we described CA Mainframe Chorus' database administrator (DBA) role offering by examining DBA tasks (*role/capabilities*) and the *value* that CA Mainframe Chorus delivers to that DBA. We reported that CA Technologies had implemented object tree navigation/management; alerts on DB2 thresholds; in-context domain documentation; and near real-time performance monitoring with graphical display of performance activities. This year, CA Technologies has added an Object Migrator; CA Detector Keys; advanced filtering; real time statistics reporting; and time series data graphing. These new features/functions — and the value that they deliver — are illustrated in Figure 3 (below).

Figure 3 — The Database Administrator Role: Capabilities and Value Delivered

Role/Capabilities	Value Delivered
New — **Object Migrator** — provides more control over which related object types are migrated by user selection of related object types to be migrated, as well script generation options support	Enhanced migration support
New — **CA Detector Keys** — helps reduce time and effort required for navigating, reporting and resolving DB2 performance data	Saves time; simplifies management activities
New — **Advanced filtering** — filter objects based on attributes	Makes filtering more efficient. Less manual effort
New — **Real-time statistics** — real-time access to statistics of DB2 objects from the investigator tree	See DB2 activities as they occur (not by looking at older log data)
New — **Time series data graphing** — for DB2 application performance data	Visualize system/database performance rather than manually interpreting and plotting performance
Object tree navigation and management of DB2 objects	More efficient visual means to navigate the object tree improves productivity when navigating LPARs, subsystems, databases and other DB2 objects
Alerts on DB2 threshold exceptions	Provides a launch point for easier troubleshooting. Focuses new DBAs on priority items and enables new DBA to learn these skills
In-context domain documentation with 3rd party integration	Increase productivity of current and next generation mainframe IT staff through centralized, in-context knowledge
Near real-time performance monitoring with graphical displays	Manage the health of the DB2 system as well as currently executing applications.

Source: Clabby Analytics — January, 2012

CA Mainframe Chorus' Object Migrator is a function that provides DBA's with the ability to select related object types and then migrate those related objects between database instances. This selection can be done manually — or scripts can be created to automate data migration.
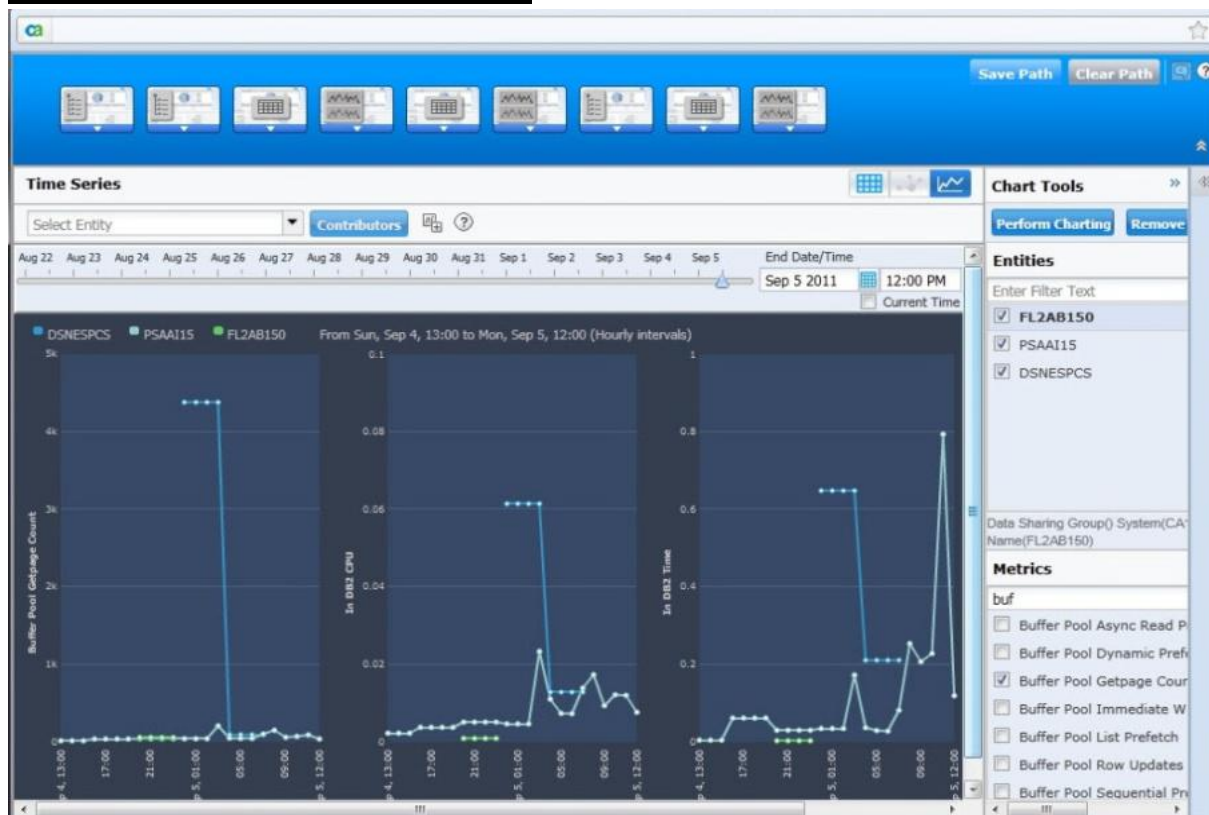
CA Detector Keys are essentially navigational tools — keys that save the DBA from having to go through lengthy keystroke sequences in order to navigate, generate performance reports, and resolve DB2 performance problems.

Advanced filtering enables DBAs to more easily filter objects based on their attributes — making filtering activities less manual and more efficient.

CA Technologies has also introduced real-time access to statistics of DB2 objects from the DB2 investigator tree. Using this real-time data, DBAs can ascertain what is happening within a DB2 database rather than having to rely on older, logged data. This real-time access to statistics can lead to more rapid problem determination and resolution.

Our favorite feature within CA Mainframe Chorus' DBA management offering is the new time-series data graphing capability. Using this feature, DBAs can automate the tracking and graphing of comparative historical data — and then view it in graphical form in order to more quickly resolve performance issues. To do this, DBAs simply launch a metric activity (such as buffer pool activities shown in Figure 4 — bottom, right), and CA Mainframe Chorus then gathers historical buffer usage data and shows how buffers, the CPU, and DB2 have utilized resources over time. With this data, performance issues can be more quickly identified and resolved.

Figure 4 — Time-series Data Graphing

Source: CA Technologies — January, 2012

CA Mainframe Chorus for Security and Compliance Management
When we attended CA Technologies' analyst event in New York City in July, we were surprised to learn that approximately 11% of this company's overall revenue comes from the sale of security products (CA Technologies generates almost $4.5 billion in annual revenue). CA Technologies also told us that the company focuses in two areas when it

comes to security: identity and access management. To us, this shows that CA Technologies has a focused security strategy — and that it is well accepted by information technology (IT) buyers when it comes to security.

In security and compliance, CA Technologies is particularly strong in mainframe management products — and its CA Top Secret® for z/OS r14 and CA ACF2™ for z/OS r14 have been certified at EAL Level 4+ compliance status. EAL is a Common Criteria International security standard used to evaluate security products — and it is mandated for commercial information security products purchased by the U.S. government for use in national security systems. Currently, 26 countries recognize this security standard.

CA Mainframe Chorus for Security and Compliance Management has been designed to dramatically simplify mainframe security administration. It offers:

- ***Real-time access to state and event activities*** — in security, it is very important to understand when someone has compromised a system at the time it is happening (real time). CA Mainframe Chorus helps ensure that security analysts are always provided complete, current, and accurate security information which will help them to respond more quickly to anomalies;
- *Advanced reporting capabilities* — to perform security analysis, it is important to understand a given enterprise's security policies, as well as the context around a given security event (because understanding the security policy and the context surrounding a given anomaly can lead to faster problem resolution). CA Mainframe Chorus can generate standard reports that show an enterprises security policy and related context. Further, CA Mainframe Chorus allows for custom reports to be generated;
- ***Security data model extension***s — CA Mainframe Chorus allows security administrators to add security element descriptors that can produce business centric reports that are easier to understand by data owners and end-users; and,
- ***New and improved event handling for z/OS*** — Using this feature, IT managers and administrators can continually track compliance requirements — enabling real-time notification should a compliance requirement fail to be addressed.

CA Mainframe Chorus in Storage Management
Storage is one of the fastest growing segments in the computer hardware industry — growing at a 6% CAGR (compound annual growth rate). By contrast, servers are growing at half this CAGR. Storage, therefore, represents a very significant portion of an average data center's spend.

To get storage costs under control, IT organizations generally attack storage costs in two area: 1) improving storage utilization; and, 2) lowering the cost of storage management (human-related manual labor is the highest cost of operating a data center). CA Mainframe Chorus for Storage Management is designed to help lower human labor management costs by dramatically simplify mainframe storage administration.

CA Mainframe Chorus for Storage Management uses a graphically driven role-based approach to simplify storage management and increase staff productivity. But also

noteworthy, this approach simplifies mainframe storage management to a degree that it makes it easier for storage managers and administrators without mainframe experience to quickly learn to manage mainframe storage (this means, potentially, that enterprises using CA Mainframe Chorus for Storage Management may be able to use lesser skilled — and often far less costly — administrators to run the mainframe storage environments).

In essence, CA Mainframe Chorus for Storage Management provides a graphical storage topology that provides not only a graphical view of storage resources within a given mainframe environment, but also provides historical usage data that can be used to troubleshoot problems and/or help tune storage environment (leading to increased utilization).

Noteworthy in this new storage role is that CA Mainframe Chorus for Storage Management includes:

- *Storage topology views* — Enables storage managers to quickly view the entire storage infrastructure using a topology map that shows logical relationships among resources that are related to the selected resource, including hosts, host volumes, storage systems, storage volumes, storage pools, and disk drives;
- *Pre-defined monitors and alerts* — this feature allows storage managers to easily set thresholds to automate monitoring of dynamic storage levels. Once alerted to storage issues, storage managers can quickly respond and resolve problems before those problems impact storage availability and performance;
- *Solutions-based storage analysis* — this facility uses advanced qualitative analysis reporting capabilities to deliver a deep and broad report on storage activities and performance — helping storage managers better understand storage utilization and performance and leading to better storage infrastructure reporting accuracy; and,
- *Historical storage trend analysis* — This feature automates the tracking and graphing of comparative historical analysis of storage volume data for easier diagnosis and resolution of performance issue.

Customer Raves and Rants

Part of the research involved in writing this report involved talking with several customers and experimentalists (beta customers). And the solution feedback that I got was very positive for the most part — whereas I discovered a concern from a different perspective involving user habits.

Every user that I have ever talked to about CA Mainframe Chorus raves about the user interface. They love being able to see the scrolling ticker tape at the top that monitors systems resources and displays trouble spots. The novice mainframers emphasize that this interface is how they learned to use computers — by point and click — so CA Mainframe Chorus feels natural to them. And one mainframe manager clearly articulated the benefits that he sees from the product: "*it enables you to get your job done faster, you get higher quality information, and sometimes it presents you with new information that you would have had a hard time finding using other tools — enabling you to reach conclusions more accurately*".

CA Technologies: Delivering on the Promise of CA Mainframe Chorus

On the negative side, however, I have come across mainframe managers who have no interest in working with CA Mainframe Chorus. These people sometimes have several terminals in their offices, they access the mainframe using 3270 green screen emulators, and they are very happy to use cryptic command line interfaces to manage various elements of their mainframe systems. My big concern here from an enterprise perspective is that these IT managers have a certain "tribal knowledge" of the mainframe — and that knowledge needs to get passed on to other employees. CA Mainframe Chorus has the ability to capture this knowledge — allowing tasks to be turned into wizards that managers who are building mainframe skills can use to more effectively manage mainframes.

> *From my perspective, IT executives who are interested in ensuring that mainframe tribal knowledge gets passed on to the next generation of mainframe managers must impress upon command-liners that the enterprise needs them to use CA Mainframe Chorus. Not only will it make them more productive, it will also reduce risk and exposure to the enterprise should the skills needed to operate the mainframe leave the company.*

Summary Observations

We continue to be enthusiastic about CA Technologies' CA Mainframe Chorus — primarily because we believe that it represents the bridge between character-driven command line-oriented mainframe management packages of the past, and tomorrow's highly integrated, graphically-oriented "integrated service management" environments. We believe that this type of software will make it far easier for "the next generation" to learn how to tune, optimize, and manage mainframe environments. We also like the way that it automates various laborious processes — taking tasks that previously took hours to complete and finishing them in a fraction of the time.

In addition to its intuitive design and its process automation facilities, we especially like CA Mainframe Chorus' knowledge management environment. CA Mainframe Chorus offers mainframe managers and administrators access to a knowledge management environment where they can easily look-up a policy or procedure that can help execute a given task. And CA Technologies has also created process capture "wizards" that make it easy for experienced mainframe staff to create customized guided workflows for their successors. As we see it, this is a very effective way to pass "tribal knowledge" (the knowledge that can help the next generation of mainframe managers understand what their forebearers did under certain circumstances) to next generation mainframe managers.

> *In the end, we think that the first revision of CA Mainframe Chorus was interesting because it showed how novice IT administrators and managers could use a simple, intuitive management environment to manage one aspect of a mainframe environment — a DB2 database. But now that CA Technologies has expanded its DB2 database administrator functionality — and has added new roles (security/compliance and storage management), we think this product is now taking shape to be deployed as a centralized control center for mainframe management. We do not see CA Technologies' competitors follow these same design principals — and accordingly, we think CA Mainframe Chorus will be a big winner over time for CA Technologies — and for CA Technologies' mainframe customers.*

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