



ORACLE



Upgrade to r12 at Cavium Inc. using Trinity Toolkit

A Case Study

By

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Introduction



Oracle application upgrade from release 11 to release 12 has gained criticality in view of Oracles continuous push to end support for release 11, as well as, increasing in awareness and understanding of the value addition that the upgrade bring to the business.

Many organizations have done the upgrade and other are either in process or are contemplating the upgrade. The case study focuses on an upgrade from Oracle Applications 11.5.10.2 with 10g database to R12.

There are three fundamental questions that an organization needs to answer on its journey to upgrading to r12.

The first and fundamental question is, whether to upgrade or not. The question appears to be very complicated, looking at what all could go into deciding this, but the answer is really simple. The answer to this question could be 'No' in short term, but in long term, the answer is a resounding 'Yes', unless the organization is planning to move away from Oracle itself.

The second question is, whether to upgrade or re-implement. In this case all the divergent view finally converge to this, if the current implementation has so many constraints that it is adversely impacting the business processes or similar situation in envisaged in foreseeable future with a reasonable degree of accuracy, a case for re-implementation can be made. In all other cases, an upgrade is a better option in terms of time, money and risk.

The third and final question is deciding whether the business process re-engineering should be done first and then upgrade should happen or organization should first upgrade and then review / re-engineer there processes. This question unfortunately does not have a simple answer. R12 now has a number of functionalities that were not there in r11 and for which the organization may be using customized solution. Also there are may be functionalities that the business now expects, and which are available out of the box in r12. So a review of all customizations and gaps, incorporating the current expectations is mandatory. A balance may then be struck with what is taken up by way of review / re-engineering before and what after the upgrade to R12.

In our case study, we are taking an organization which has decided to:

- a. Upgrade to r12 (12.1.3)
- b. Not to do re-implementation but to go for an upgrade
- c. Identified r12 functionalities coming out of the box matching the current business expectations for inclusion in the scope for upgrade but deferred anything which has a unfavorable risk perception, for post r12 upgrade.

The Challenges...



After due deliberations, Cavium picked Triniti as their partners in upgrading to R12. Triniti had an upper edge in selection as with more than 20 years of experience in Semi-Conductor industry, we were well conversant with the business processes in a fables manufacturing organization. There was however challenges that we were looking at while doing the upgrade.

1. **Completion of project in 25 weeks** - The project plan was created and resources assigned both from Cavium and Triniti. The total duration was 25 weeks starting 11ht Feb 2012 with a go live date of 5th of Aug 2012.
2. **Porting ALL existing functionalities**, customization and reports existing in r11 to r12.
3. **No full time Project Management** – The team will manage itself using Triniti tools. Project management activities will be performed by one of the resources identified from the project team.
4. **No additional onboarding of resources from Business / IT** – Engaging of business will be minimal and in a way that the existing business head count does not impacted. The business should be able to do all there routine activities without interruptions and the testing (non UAT) will be handled using automated testing tool.
5. The upgrade process should be documented and implemented to have complete audit trails **meeting SOX controls**, and should be able to support SOX audit for the upgrade.
6. **Post go live issues should be within the acceptable threshold**

In addition to these objectives, internally Triniti also has objectives which stem from the way Triniti execute the projects. Internally, we were to meet the objective of meeting and exceeding expectations of the client, to make upgrade process simple and transparent, and to make sure that, at all times, we closely monitor the progress and protect the project from risks and uncertainties.

The Solution...



Cavium agreed to the recommendation from Trinita to use Trinita tools for facilitating the upgrade as well as for automating the testing process. Following tools were used to meet the challenges head-on.

A. Tri2 (Trinita Rapid Integration and Implementation)

This formed the backbone for the implementation process. The project plan was created. Understanding the nature of the beast, mutually agreed reserves were created to account for changes that may come up, as by nature, the scope gets elaborated as the project progress. Tri2 was used extensively for:

- a. **Project planning and Issue Management**– All tasks were created in Tri2 at the onset of the project, resources were assigned and task durations were updated along with task priorities and dependencies. Using the integration with MS Project, the data in Tri2 was leveled and expected dates for completion were uploaded back into Tri2.
- b. **Project Execution** – Once the tasks were in Tri2, it provided one place where the resources could look for the tasks they have to perform. This also provided place where each resource can update the progress that they are making.
- c. **Project Monitoring** - Providing a single place where resources can update progress of their tasks and make them as complete enabled us to look at aggregate progress made on the project at any given point of time based on a SINGLE SOURCE OF TRUTH. There were no excel sheets used during the project for Status updates.
- d. **Project Control** – As the project progressed, any issue (defect or otherwise requiring effort) was logged into Tri2. This enabled us to keep project on track and make sure that we are not deviating from the project objectives. A weekly download of plan from Tri2 and uploading it into MS Project was done. In MS Project, leveling was done for the new tasks created in Tri2 and expected date of completion, bottlenecks etc. were analyzed.
- e. **Project Communication** – Tri2 workflow provided a seamless communication between implementation team, with better on-site / off-shore co-ordination and with the client. As a task was completed by one member of team, it immediately went to the queue of next resource that is supposed on work on it, obviating need for e-mails, phone call etc. For sharing the progress with client, graphs and other issue related data were available which can be looked at clients convenience.

Tri2 Issues Analysis

S No:	Description	Count
1	Project Tasks and Pre Go - live Issues	458
2	Cut Over Tasks	91
3	Post Go Live Issues	25
	Total	574

Tri2 Report / Dash Board

i. Managers View

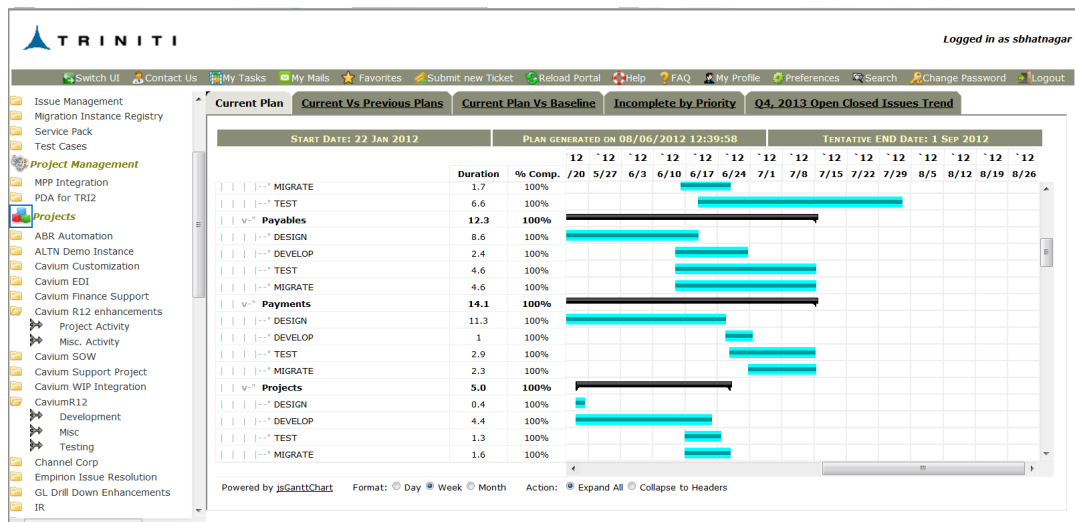
Manager Worksheet : Issue Management : TRI2 PROD

SB Managers View : Worksheet Tue, 12 Nov 2013 06:16:47 SGT

Project	Process	Module	Priority	Issue Number	Issue Title	State	Status	Role	Resource	Duration	Days Remaining	Next Operation	Task Resource Comments	Lz Ct
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	Assign Resources	SKIPPED	CaviumR12 Manager	sbhatnagar	0	0			Migrat to Usi
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	Functional Design	SKIPPED		sbellary		0			Migrat to Usi
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	Technical Design	COMPLE		sbellary	0.125	0		Taken Backup for the Existing Calvus sets and Created New Value Sets with same name	Migrat to Usi
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	Develop & Unit Test	COMPLE		sbellary	0.5	0		Issue Fixed and Tested	Migrat to Usi
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	Code Review	COMPLE		pgarapati	0.2	0		Done	Migrat to Usi
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	UAT	COMPLE		pgarapati	0.125	0		Done	Migrat to Usi
CaviumR12	Development	Projects		99.15037763	Unable to open the Project Template Function in Project	PROD Migration	COMPLE		pgarapati	0.125	0		Migrated thru script sent to Usi	Migrat to Usi
941	CaviumR12	Misc	System Administration	99.15038091	SOX Control Meeting - 1	Assign Resources	COMPLE	CaviumR12 Manager	sbhatnagar	0.01	0		Resource Assigned	Comp
942	CaviumR12	Misc	System Administration	99.15038091	SOX Control Meeting - 1	Perform Activity	COMPLE		sbhatnagar	0.25	0		Completed	Comp
943	CaviumR12	Misc	System Administration	99.15038092	SOX Control Meeting - 2	Assign Resources	COMPLE	CaviumR12 Manager	sbhatnagar	0.01	0		Resource Assigned	Comp
944	CaviumR12	Misc	System Administration	99.15038092	SOX Control Meeting - 2	Perform Activity	COMPLE		sbhatnagar	0.25	0		Completed	Comp
945	CaviumR12	Development	Cost Management	99.15038033	Deferred COGS accounting does not have correct PROD segment	Assign Resources	COMPLE	CaviumR12 Manager	sbhatnagar	0.01	0		Resource Assigned	Post C
946	CaviumR12	Development	Cost Management	99.15038033	Deferred COGS accounting does not have correct PROD segment	Functional Design	COMPLE		sbhatnagar	0.2	0		Changes to be made to Defl COGS workflow for item segment	Post C
947	CaviumR12	Development	Cost Management	99.15038033	Deferred COGS accounting does not have correct PROD segment	Technical Design	COMPLE		pgarapati	0.2	0		Done	Post C
948	CaviumR12	Development	Cost Management	99.15038033	Deferred COGS accounting does not have correct PROD segment	Develop & Unit Test	COMPLE		pgarapati	0.5	0		Development done and	Post C

This was user for Issue Management (Creating Tasks / Issues, Assigning Resource, Assigning task duration and Assigning task Priority). It was also used for analyzing the progress made in the project proving necessary inputs for Project management (Monitoring and Controlling Project timelines, Monitoring and controlling Project Scope)

ii. Dash Board



B. Business Process Modeler (BPM)

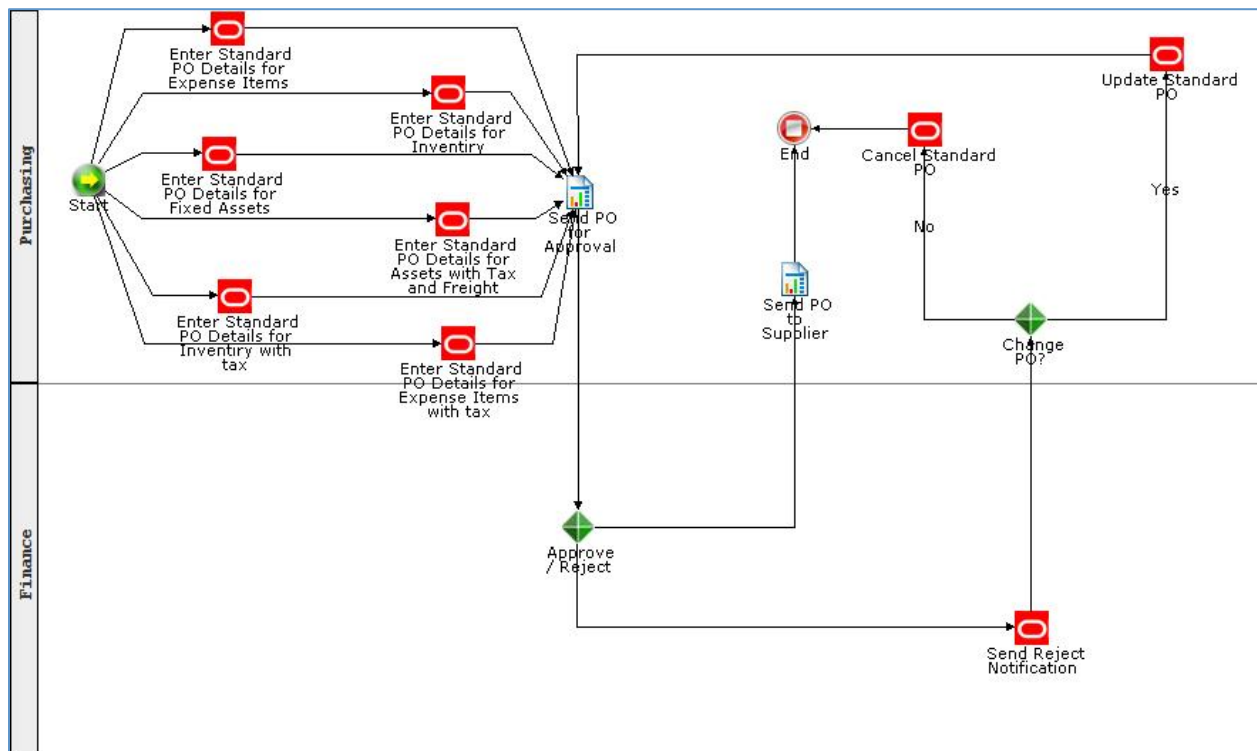
The growth in business volume has been phenomenal for the client and as such the processes have been created on the fly. With time, those processes have evolved and gained maturity.

Unfortunately, since the process were in continuous state of flux, they were never documented even after they became stable, supported by business policies and procedures.

As a starting point for the upgrade, an exercise was undertaken to map all the Oracle related business processes. These business process created were to:

- Pictorial Presentation of Business Processes** – BPM provided a tool to create pictorial presentation for business process which can be easily understood by business.
- Audit Reference** – This created a repository of all oracle related business processes for providing reference for audit
- Process / Desktop procedure reference** – The desktop procedures created while undertaking the recording thru RnR tool were uploaded and attached to the business process. This created a repository of all oracle related business processes and desktop procedures for providing reference to a person joining the organization or whose role has been changed.
- Basis of automated testing** – The process created using BPM provided the basis for creating a super set of test cases for undertaking the automated testing.

BPM Sample Process – Standard PO Creation



A total of 89 business process Models were created.

C. Triniti UI Record and Replay (RnR)

This provided the engine for automated testing. Once the test cases were created, using the business processes mapped, scripts were recorded using the RnR tools. These were used for:

- Creating a database of all test scripts
- Creating Desktop procedures
- Creating detailed steps for user for executing UAT

After the scripts were recorded using RnR, they were attached to the appropriate test scenario in Tri2. This link provided the intelligence in Tri2 as to which RnR scripts needs to be run for executing various business scenarios being tested.


Automated testing for all the test cases, with which corresponding RnR scripts have been attached, was done without user intervention. The test results were capture in Tri2 along with screen shot for the error screen in case the test case failed.

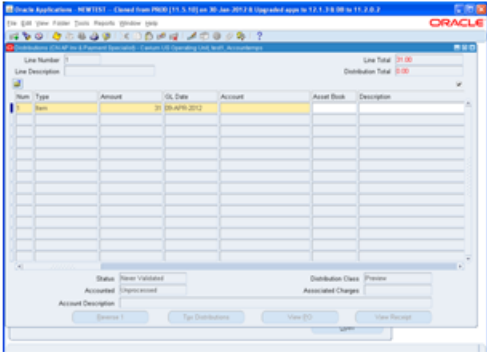
Sample RnR Script

Model ID	Scenario Description	TC Number	TC Status	Generate Testcase	User Defined Scenario Name	Valid Scenario
42173	Scenario 1 @1.11 Standard PO Process	TC004777.1.2	New	No	Standard PO - Expense Item - Approved	Yes
42174	Scenario 2 @1.11 Standard PO Process	TC004777.2.2	New	No	Standard PO - Inventory Item - Approved	Yes
42175	Scenario 3 @1.11 Standard PO Process	TC004777.3.1	New	No	Standard PO - Fixed Asset - Approved	Yes
42176	Scenario 4 @1.11 Standard PO Process	TC004777.4.1	New	No	Standard PO - Expense Item with tax - Approved	Yes
42177	Scenario 5 @1.11 Standard PO Process	TC004777.5.1	New	No	Standard PO - Inventory Item with tax - Approved	Yes
42178	Scenario 6 @1.11 Standard PO Process	TC004777.6.1	New	No	Standard PO - Asset with tax and freight - Approved	Yes
42179	Scenario 7 @1.11 Standard PO Process	TC004777.7.1	New	No	Standard PO - Expense Item - Reject - Update - Re Approval	Yes
42180	Scenario 8 @1.11 Standard PO Process	TC004777.8.1	New	No	Standard PO - Inventory Item - Reject - Update - Re Approval	Yes
42181	Scenario 9 @1.11 Standard PO Process	TC004777.9.1	New	No	Standard PO - Fixed Asset - Reject - Update - Re Approval	Yes
42182	Scenario 10 @1.11 Standard PO Process	TC004777.10.1	New	No	Standard PO - Expense Item with tax - Reject - Update - Re approval	Yes
42183	Scenario 11 @1.11 Standard PO Process	TC004777.11.1	New	No	Standard PO - Inventory Item with tax - Reject - Update - Re Approval	Yes
42184	Scenario 12 @1.11 Standard PO Process	TC004777.12.1	New	No	Standard PO - Asset with tax and freight - Reject - Update - Re Approval	Yes
42185	Scenario 13 @1.11 Standard PO Process	TC004777.13.1	New	No	Standard PO - Expense Item - Reject - Cancel	Yes
42186	Scenario 14 @1.11 Standard PO Process	TC004777.14.1	New	No	Standard PO - Inventory Item - Reject - Cancel	Yes
42187	Scenario 15 @1.11 Standard PO Process	TC004777.15.1	New	No	Standard PO - Fixed Asset - Reject - Cancel	Yes
42188	Scenario 16 @1.11 Standard PO Process	TC004777.16.1	New	No	Standard PO - Expense Item with tax - Reject - Cancel	Yes
42189	Scenario 17 @1.11 Standard PO Process	TC004777.17.1	New	No	Standard PO - Inventory Item with tax - Reject - Cancel	Yes
42190	Scenario 18 @1.11 Standard PO Process	TC004777.18.1	New	No	Standard PO - Asset with tax and freight - Reject - Cancel	Yes
42191	Scenario 19 @1.11 Standard PO Process	TC004777.19.1	New	No	Standard PO - Expense Item - Update	Yes
42192	Scenario 20 @1.11 Standard PO Process	TC004777.20.1	New	No	Standard PO - Inventory Item - Update	Yes
42193	Scenario 21 @1.11 Standard PO Process	TC004777.21.1	New	No	Standard PO - Fixed Asset - Update	Yes
42194	Scenario 22 @1.11 Standard PO Process	TC004777.22.1	New	No	Standard PO - Expense Item with tax - Update	Yes
42195	Scenario 23 @1.11 Standard PO Process	TC004777.23.1	New	No	Standard PO - Inventory Item with tax - Update	Yes
42196	Scenario 24 @1.11 Standard PO Process	TC004777.24.1	New	No	Standard PO - Asset with tax and freight - Update	Yes

Record(s) 0 | Total Time 00:00:08.697

Sample Desktop Procedure





The screenshot shows the Oracle AP Invoice Distribution window. It features a table with columns: Num, Type, Amount, GL Date, Account, Asset Book, and Description. The first row is highlighted in yellow and contains the values: 1, Item, 31.00, 30-APR-2012, and blank for the other columns. The window also includes fields for Line Number, Line Description, Line Total (31.00), and Distribution Total (31.00). At the bottom, there are buttons for 'Generate', 'Type Distribution', 'View ID', and 'View Receipt'.

Figure: AP invoice Distribution

Description:
Enter the AP Invoice Distribution Details as below:

1. Num: This will automatically default
2. Type: Item will default for Item line. In case tax is applied to the line, the line type will be displayed as Tax
3. Amount: Enter the amount for the distribution line
4. GL Date: This will default to current system date.
5. Account: Enter the account code combination for the distribution line. Clicking on LOV next to Account field will bring up window from which the accounting segments can be selected. This is the account that will be debited when accounting for the AP Invoice is generated

Cavium Networks - Confidential

Total of 168 RnR Scripts were recorded:

S No:	Oracle Module	Count
1	Payables	9
2	Receivables	18
3	Bill of Material	2
4	Costing	10
5	Credit management	2
6	Fixed Assets	23
7	General Ledger	11
8	HRMS	10
9	Inventory	7
10	Order Management	13
11	OSFM	4
12	Purchasing	45
13	Project	15
	Total	168

D. Analyze customizations / extensions for Objects to be upgraded

The client had plethora of extensions / customization and report. Scripts were run which analyzed the database objects comparing against what all objects have undergone change in R12. This was used to:

- a. Create a comprehensive list of objects that would need review due to the upgrade
- b. Create tasks in Tri2 for review. Based on review, objects were pushed on to development workflow.
- c. Limiting testing to objects what require a change due to upgrade to R12

E. Validating Data Across Instance:

At each iteration, when an instance of R12 was created from R11 instance (There were a total of three instances before PROD was created), Master Data as well as transactional data was compared thru scripts to validate that all the data got ported across upgrade. This provided:

- a. Confidence to Business that there is not missing data and that they can start using the new instance, from exact point where they left in R11
- b. Provided information to meet SOX and financial audit requirements providing a confirmation that the upgrade process did not resulted in any information getting lost.

Achievements...



Triniti tools provided the entire gambit of functionalities that facilitated the upgrade process and at the same time provided mechanism for planning, monitoring and controlling project and simplifying the testing process by automating non UAT testing. For UAT, since the tool has not been certified by SOX auditors, we resorted to manual testing, but even in that case, the detailed test steps to be executed by users as part of UAT was generated though

Triniti tool.

Challenges vs. achievement matrix:

S No:	Objective	Achievement	Success
1	Completion of project in 25 weeks	The project went live on 5 th of Aug 2012 (25 weeks)	100 %
2	Porting ALL existing functionalities, customization and reports existing in r11 to r12	All existing functionalities / reports were ported to R12	100 %
3	No full time Project Management	Finance lead also conducted the role of Project Manager using Tri2	100 %
4	No additional onboarding of resources from Business / IT	No Additional onboarding of resources was done. Part of reserves were though used at time for fast tracking when based on analysis of data from Tri2, it was observed that we are slipping the go live date	100 %
5	The upgrade process should be documented and implemented to have complete audit trails meeting SOX controls, and should be able to support SOX audit for the upgrade	The client successfully passed SOX audit and financial audit pertaining to R12 upgrade without ANY adverse observations	100 %
6	Post go live issues should be within the acceptable threshold	We encountered minimal post go-live issues in all areas except Payables and Order Management.	92 % <i>RCA for 8 % was done and following came up.</i> Order Management: Business Process Mapping did not capture all valid business scenarios resulting in insufficient testing. Payables: Sample drawn did not include invoices from pre upgrade process resulting in not

			covering the full testing horizon. <i>These were documented as part of lesson learned</i>
7	Customer Satisfaction	The client was satisfied with the upgrade especially as the transition happened without any business interruptions.	100 %
8	Transparency in execution	The process, resources, progress, issues, resolutions, timelines etc., everything was transparent to the client.	100 %

Conclusion...



R12 upgrade evokes varied response from various organizations, especially those who are planning to take the plunge. A common factor in the responses though is some amount of apprehension about how they want to approach the upgrade, practically taking the upgrade as a threat and not as an opportunity. . The root cause for this apprehension is the lack of information / incomplete information about the upgrade process per se along with high level of risk perception owing to all the horror stories floating around the ERP universe.

Triniti, through this project, on which the case study has been based, was able to demonstrate how, using Triniti tools, upgrade process can be simplified, made efficient, transparent to all the stake holders taking risk out of the equation or at least to minimize the risks to an acceptable limit.

Each Triniti tool was successful in performing up to the expectation that the project has from them. The success story, it can be concluded with reasonable confidence, was attributable to the teams, Triniti tools and how the team was able to leverage the tools to make things happen when they were supposed to happen, maintaining the quality in execution all this while.

Appendix

About Cavium:

Cavium Inc. is a fabless semiconductor company based in San Jose, California specializing in ARM-based and MIPS-based network, video and security processors and SoCs. Cavium offers processor and board level products targeting routers, switches, appliances, storage and servers

About Triniti:

Triniti Corporation is a Platinum partner for Oracle. It specializes in Oracle implementation and R12 upgrade and boasts of a formidable presence in Semi-Conductor industry. Highest business ethics and customer centric implementation methodology are the hallmarks of Triniti.

Upgrade Team:

Cavium Inc.

1. Art Chadwick – CFO - Project Sponsoror
2. Jacob Gsoedl – Director Business Systems– Project Coordinator
3. Tiffany Nguten – Business User GL and SOX Coordinator
4. Thahn Ma – Business User AR
5. Cherrlyn – Business User AP
6. Eric – Business User – Costing
7. Marcia Butler – Business User : Order Management
8. Teresa Mathews – Business User : RMA
9. Rashid – Business User : Shipping
10. Carlos – Business user : Manufacturing
11. Tu Ly - Business User – Purchasing
12. Karen - Business User - Cash Management

Triniti – On Site:

1. Sanjay Bhatnagar - Project Manager and Finance Lead
2. Prakash Garapati - Technical Architect
3. Shailendera Agarwal - Manufacturing and Supplier Integration

Triniti - Off shore

1. Srinivasan Bellary - Technical Architect
2. Raghvendra Prasad Chelloti - Triniti Product Support
3. Kiran Chinta - Triniti Product Support
4. Sangeetha Sudha - Triniti Product Support

Modules upgraded:

1. Payables
2. Receivables
3. General Ledger
4. Cash Management
5. Fixed Assets
6. WIP
7. EBiz-tax
8. OSFM
9. Cost Management
10. Purchasing
11. Order Management
12. XML Gateway

Custom Solution Upgraded:

1. Supplier integration with 6 suppliers
2. Onsite automation
3. Forecast Application
4. RMA Application
5. Sales Application
6. Tax Integration
7. Inter Company Transaction flows

Custom Reports Upgraded:

1. Discoverer Reports – 42 out of 206
2. Other reports – 7 out of 18

Work flow used in Tri2

1. Development
2. Testing
3. Miscellaneous