

TEAMQUEST I.T. FINANCIAL ANALYTICS: CONTINUOUSLY OPTIMIZING IT IN FINANCIAL TERMS

WHITEPAPER

BY ALEXANDER MEKYSKA & JON HILL

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TeamQuest and Mekyska Management Consultants have partnered to deliver an advanced IT Financial Management solution called TeamQuest IT Financial Analytics. This paper describes how TeamQuest IT Financial Analytics provides continuous cost and efficiency optimization, allowing businesses to get the most from their IT investments.

TeamQuest IT Financial Analytics utilizes advanced techniques to enhance IT performance and capacity management with a new dimension: cost. You can get historical, current, and even predicted cost information for IT services and the underlying configuration items such as virtual machines, LUNs, nodes, databases, etc. This information is combined with highly comprehensive perspectives on infrastructure performance and capacity, all aligned to business services. Never before has such useful usage-based financial analyses been available for IT business decision-making.

CHALLENGES

Virtualization and increasingly complex agile computing environments are creating difficulties for IT financial controllers and for IT Financial Management (ITFM).



Virtualization breaks the long-standing direct, one-to-one correlation between cost-allocated physical hardware and the IT services it supports. Increasingly dynamic, multi-layered applications have made it more difficult to determine how much computing resources have been used to deliver each service. And dynamic computing environments can make services look like they have disappeared long before traditional ITFM even notices that they were there.

Performance Dimension

These challenges create a situation where it is difficult, perhaps impossible, to financially justify investments. What is the optimum investment needed in order to deliver appropriate price-performance to the IT clients who ultimately pay the bills? What will be the profit realized from new revenue-generating IT services?

Justification, let alone optimization, cannot occur without first having an appropriate and accurate understanding of the total price-performance picture. Price in terms of IT assets used in delivering IT services. Performance in terms of how much useful work is being accomplished, i.e. what are the business results produced by those IT services.

Capacity Dimension

Further complicating the picture is the reality that IT resources are rarely 100% fully utilized. Although the goal is to minimize unused capacity, a certain amount of headroom must exist to ensure acceptable response time mandates are continuously met. Optimizing resource headroom is a challenging technical problem. To truly understand the business benefits of optimization, you also need to know the cost of headroom.

The Requirement

What is needed is a solution that can provide these monetary determinations for dynamic, virtualized computing environments.

- How much resource is actually being consumed to support various services?
- What is the cost of the resources delivering current services and how does it relate to service performance?
- How much infrastructure headroom is required (by service) to ensure performance under changing conditions?
- What is the cost of the headroom needed to ensure ongoing service delivery?
- What must be spent to ensure cost-effective and acceptable service, and what will be the business benefit of that expenditure?

Know the hardware cost of running applications

IT Financial Management is an integrated toolset and process for determining how costs accrue to the delivery of IT services. How is ITFM really engaged in daily business? Today's accounting methods primarily calculate the costs of physical IT resource platforms (servers, storage, etc.). Determining operating costs of an application — both if and when deployed — is based on estimations. But estimations are not good enough. Accurate cost information is crucial for business decision-making.

Based on Usage

Accurate usage-based cost information is frequently also needed for regulatory compliance. For example, organizations with centralized data centers providing IT services to customers residing in different tax jurisdictions oftentimes are required to prove they are accurately costing the services they are delivering across borders. If they want to minimize their tax liability, these organizations have to be certain their cost allocations are sufficiently accurate and consistent to survive a compliance audit.

Be compliant with tax regulations

There continue to be many different attempts to distribute costs based on usage. Generally, these approaches are based on tariffs calculated on costs and capacity at a certain moment before any given fiscal year starts. This static, “batch type” approach completely fails to take into account changes in performance, utilization and cost during the entire period between such “batch” allocations, clearly totally failing to adapt to dynamic, virtual environments!

A NEW SOLUTION, DYNAMICALLY ALIGNING IT PERFORMANCE WITH FINANCE

TeamQuest IT Financial Analytics is a solution that brings usage metrics and cost information together dynamically in an automated, on-going fashion. The solution:

- **Incorporates both financial and technical performance data**
- **Calculates and allocates costs based on actual usage**
- **Works with highly dynamic and virtualized environments**
- **Automatically produces reports with repeatable, consistent and actionable IT financial information**



Federating data sources for business-aligned performance and capacity management

Most IT environments already have a wide variety of resource performance monitors for servers, storage, network, etc. Unlike other solutions, TeamQuest IT Financial Analytics integrates with virtually any performance data sources to quickly deliver decision support information. The highly flexible and scalable solution delivers powerful, predictive analytics to support IT performance analysis, capacity management and resource reporting.

The TeamQuest Financial Analytics solution provides automation of analysis for almost any measurable aspect of performance and capacity. It comes with extremely useful analytics and reports right out of the box. It is also easily customized to provide exactly what IT and business management needs, bridging the communications gap that might otherwise exist between IT Operations, Service Delivery, and the business.

Highly compelling for large and dynamically changing virtual environments, a key TeamQuest IT Financial Analytics feature is the ability to automate exception-based hierarchical analytics. In these hierarchical reports, the analytical engine produces various drill-down report details automatically only when specified conditions exist. For example, when an application's financial KPI's fall beneath a given threshold, a cost report might be produced showing the underlying infrastructure utilization costs — or resource usage — for the application.

Calculating costs across underlying infrastructure elements

With usage data federated from an organization's existing sources, including CMDBs and performance databases, TeamQuest IT Financial Analytics can calculate the cost share of each virtual machine used by an application or service. A VM's underlying costs from infrastructure usage can be determined based on:

- Server resources consumed by a virtual machine (calculated based on CPU and memory utilization by the associated service)
- Usage of storage LUNs
- Back-up costs for the server
- And more

This information is correlated so that the utilization and cost information for a VM's use of servers, storage, backup and the corresponding headroom are all available for further analysis, determining how much computing resource is being used by each customer, department, service, or other cost center.

Actionable information on costs (IT Financial Analytics)

Having all performance utilization and costing information available together allows data center management to determine, for example, what VMs are used for production or development and testing — and what they cost.

In addition, usage information can be reported to see and understand the differences in load on those different platforms. TeamQuest IT Financial Analytics combines technical information about usage and headroom with cost information. Within the solution, management can set cost-effective thresholds for performance and capacity, and management decisions can be made based on solid, grounded information — fully automated and continuously. The solution can see not only the cost of services provided in the past and today, it can also continuously predict the cost of services into the future. You can thus set the software to notify you before cost limits are exceeded.

Dynamic and precise cost calculation

Many IT organizations charge users for their actual usage of IT resources. With TeamQuest Financial Analytics, the prices charged to IT users can be more intelligently based on true costs. As a simple example, a customer might only be using 1½ systems at any given time, but the extra ½ system is necessary headroom. The cost of the customer's usage is the cost of two systems, and that usage should be priced accordingly.

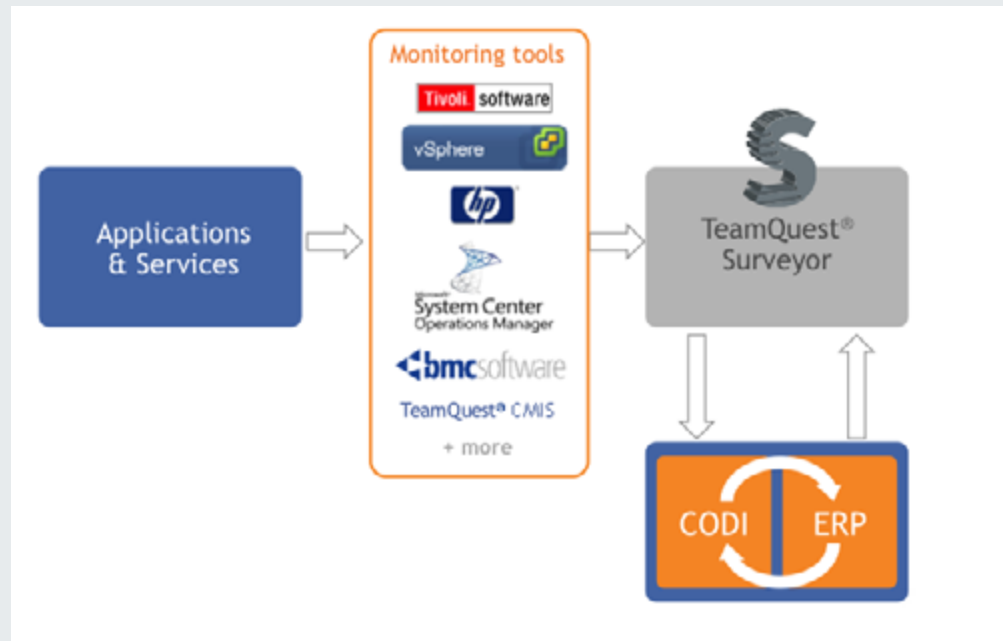
Usage and infrastructure are constantly changing, so having continuously up-to-date cost information is another important benefit of using TeamQuest Financial Analytics. For example, if a business unit switches from in-house IT to a public cloud-based provider, but the in-house IT infrastructure used by that business unit remains, then the cost for usage by other business units will necessarily go up. A price change may also be needed at the next date where price adjustments are possible.

Integration with broader IT Financial Management processes & tools

At the same time cost information is calculated, TeamQuest IT Financial Analytics creates the data sets necessary for further processing by the customer's existing IT Financial Management applications (i.e. existing customer ERP environments). Within these ERP applications, the distribution of infrastructure costs to IT services can be triggered and executed. These costs include total operating costs as well as correlated costs of necessary (and unnecessary) resource headroom. Basically, all of the usage-based cost information calculated by TeamQuest IT Financial Analytics can be made available and usable by organizations' existing internal controlling/booking processes.

HOW TEAMQUEST FINANCIAL ANALYTICS WORKS

TeamQuest IT Financial Analytics



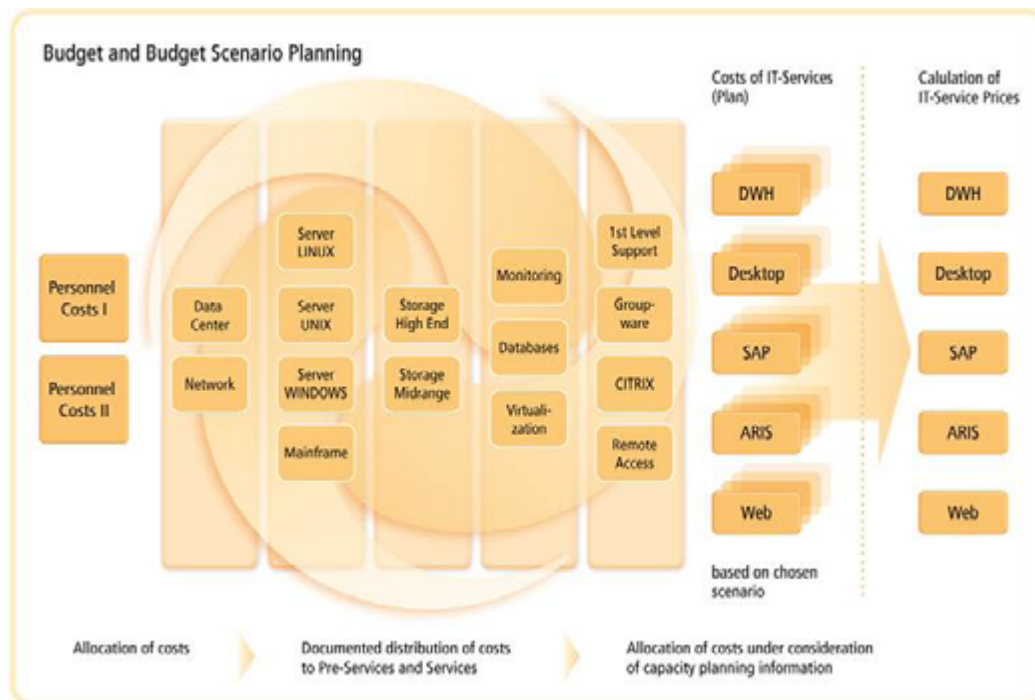
The diagram above shows the software components of TeamQuest IT Financial Analytics used by these key processing steps of the solution:

- Performance data is gathered and stored by pre-existing performance tools as well as by the TeamQuest Capacity Management Information System.
- TeamQuest Surveyor processes data federated from the sources in Step 1 and feeds it into an IT COst DIstributor (CODI) for financial analysis.
- The CODI cost distributor takes the actual measurement data from TeamQuest Surveyor and processes it along with cost data to determine the actual cost of IT services. This information is then available for further analysis and reporting using ERP systems as well as TeamQuest Surveyor.
- TeamQuest Surveyor uses the information from the CODI cost distributor regarding the actual cost of IT services together with actual usage information from the Step 1 data sources to proactively analyze IT performance and capacity in financial terms that are meaningful to the business.

Budget planning and calculation of IT service costs and prices

Before the beginning of every fiscal year the budgets of every department are being planned with reference to the types of costs in order to control expenses. Moreover, we must gain insight into the costs of IT services rendered to the IT customer. Therefore cost modules have to be created which contain planned cost shares of technical platforms, personnel, etc. Costs of IT services have to be found out beforehand, no matter if they are actually charged or subject of show back.

Other organizational units can only use cost information concerning IT services in their own budget planning sensibly. As a rule it can be said that purely technical information such as CPU/RAM without any relationship to application (i.e. IT service) does not contain the needed information for the IT customer. In fact, quite a few iterations are necessary for the final sign off of an IT budget that fulfills all the requirements and covers the scenarios that have to be considered.



The basic functionality for budget scenario planning contains the setup of various steps of cost allocation, of cost centers and the different ways of cost distribution (rates, quantity based and percentage). The scenarios planned are stored in a database and therefore the use and handling of complex Excel sheets become obsolete.

Report and export formats can be defined ad libitum. In addition there is the possibility to copy fully or partly existing scenarios and automate imports of basic data which supports planning perfectly. Manyfold possibilities of documentation enables the user to trace every single input. This and the easily understandable and intuitively to use user interfaces reduce planning effort by at least 20 – 30 percent compared with traditional approaches.

The calculation of IT service prices in the SimCalc calculation module refers to a certain scenario of budget planning entered in the simulation module. In general this determines the amount of costs planned, the cost centers and the parameters that are the basis for price calculation (GB SAN, Database transactions, etc.). The user can transfer this information into his calculation sheet or even work with individual parameters or cost rates.

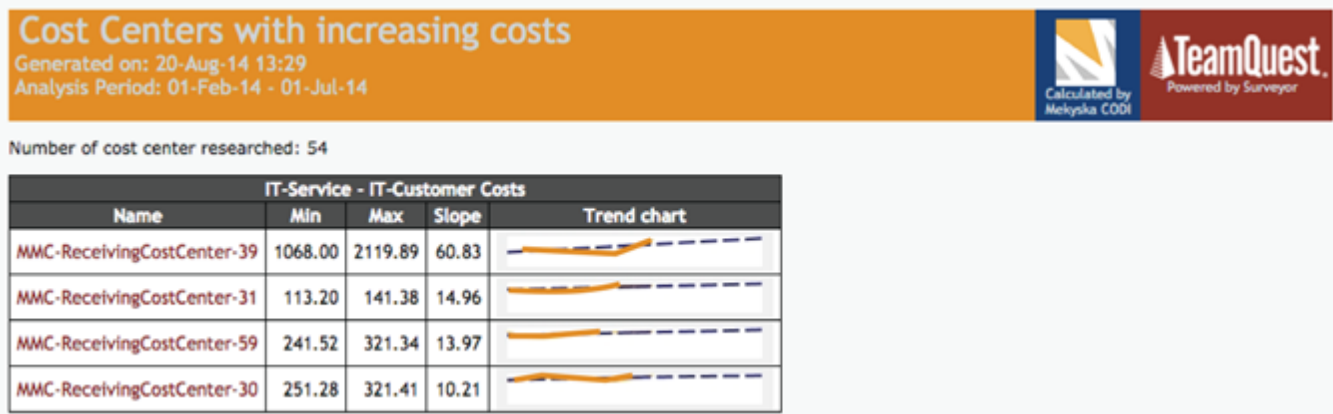
In addition, calculation items can be added and calculated at user`s choice. Files that contain additional information can be uploaded, stored and archived no matter in what format. Thus, all information is centrally stored for each service calculation and available at any time. Overhead rates can be applied for each calculation item or the calculation sheet as a whole. An easy to use administration of all service recipients completes the basic functionality. Every data set may be exported in any format.

A FEW EXAMPLE REPORTS

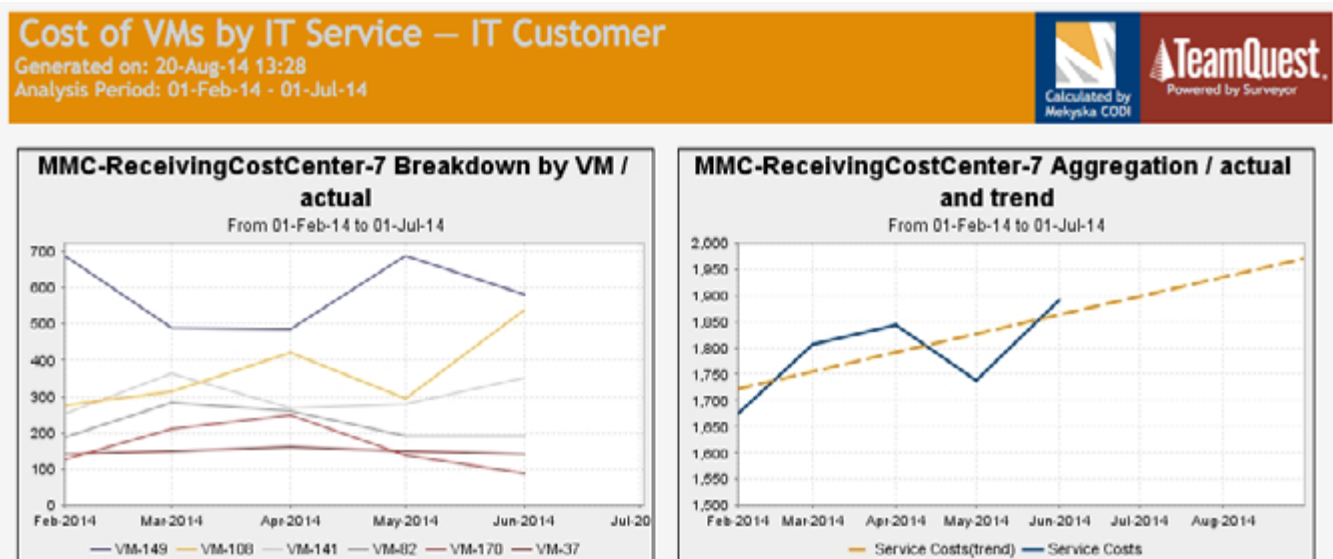
TeamQuest IT Financial Analytics provides powerful data analysis options.



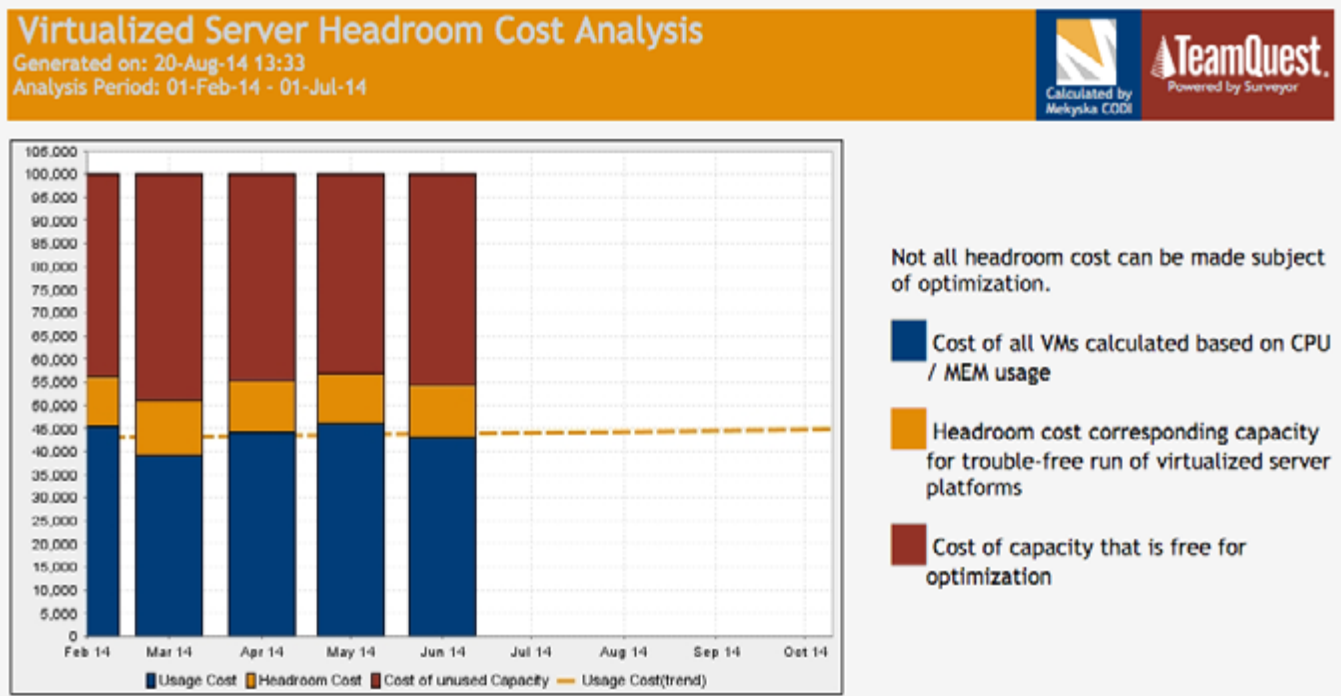
Discover and analyze cost centers with most growing costs:



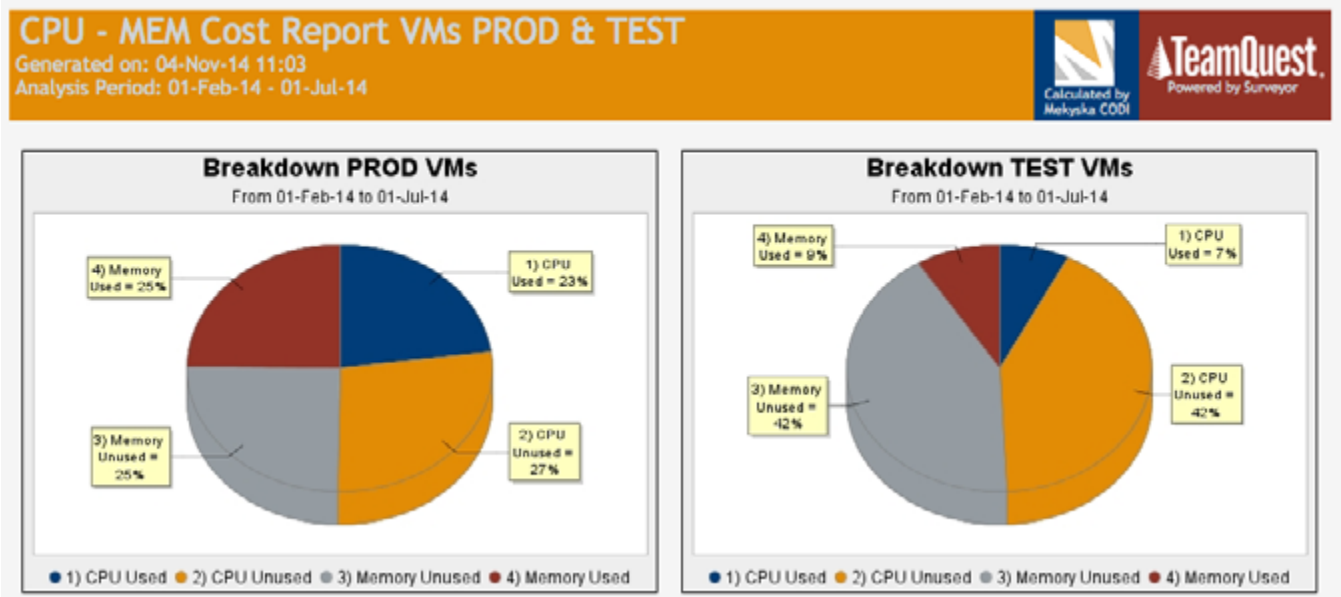
Costs of VMs by IT service or customer. Drill down (on the left), with actual/total and trend (on the right):



Cost report for IT Management to decide how much more utilization can be within existing physical host estate. Needed headroom space to guarantee outage free performance can be defined individually:



Cost report of differences in usage of TEST and PROD virtualized server environment:



CONCLUSION

Aligned Business and IT Analytics

Correlating business and IT performance has long been one of the most challenging areas of IT Financial Management. Data sources are widely varying and scattered throughout the data center. Even within one technical platform, different data sources and types can be found. With TeamQuest IT Financial Analytics it is possible to federate data from all of these data sources to analyze them together. The solution correlates business and IT performance, and gives insight into how business process changes impact IT.

Continuous Optimization

TeamQuest IT Financial Analytics can automatically and continuously identify and eliminate cost and performance inefficiencies in support of business processes. This leads to a continuous financial optimization of IT. Organizations are able to reduce initial CapEx and ongoing OpEx associated with the delivery of existing and future services. Within this continuous process it is possible to resolve, predict and prevent both financial and technical performance and capacity issues.

IT optimized... business future assured

With TeamQuest IT Financial Analytics, organizations get a clear understanding of your past, present, and future costs. This enables informed decision-making based on real, measured usage costs of services and highly accurate predictions. The analysis is automated so that decision-makers can implement continuous financial IT optimization, helping to ensure future financial success.



ABOUT THE AUTHOR: Alexander Mekyska

Alexander Mekyska leads Mekyska Management Consultants, a company based in Germany that he founded in 2001. The company provides business consulting, IT cost management, IT controlling, and project management services and related software. Mekyska's CODI software integrates with TeamQuest Surveyor to provide the TeamQuest IT Financial Analytics software solution.



ABOUT THE AUTHOR: Jon Hill

Jon Hill was one of TeamQuest's initial employees, helping to start the company in 1991. With extensive background in both engineering and marketing, Jon continues to provide advice and assistance as a consultant. He conducts research and assists with marketing communications, translating technical concepts into a language that the intended audience can appreciate and understand.

WORLDWIDE HEADQUARTERS

UNITED STATES

TeamQuest Corporation
One TeamQuest Way
Clear Lake, Iowa
USA
50428
+1 641-357-2700
US Toll Free: +1 800-551-8326

info@teamquest.com
support@teamquest.com
sales@teamquest.com

EUROPE, MIDDLE EAST, AFRICA:

SWEDEN

Box 1125
405 23 Gothenburg
Visiting Address:
Stora Badhusgatan 18-20
411 21 Gothenburg
+46 (0)31 80 95 00
emea@teamquest.com

GERMANY

Frankfurt
Herriotstraße 1
60528 Frankfurt
+49 (0)69 6 77 33 466
Support: +49 (0)69 1 20 09 550
emea@teamquest.com

FRANCE

Paris
La Grande Arche,
Paroi Nord
La Défense
92044 Paris
+33 (1)40 90 30 93
Support: +33 (1)83 79 00 47
emea@teamquest.com

UNITED KINGDOM

Oxford
7200 The Quorum
Oxford Business Park North
Garsington Road
Oxford OX4 2JZ
+44 (0) 1865 481 424
Support: +44 (0) 2036 300 211
emea@teamquest.com

LONDON

Lakeside House
1 Furzeground Way
Stockley Park
Uxbridge
UB11 1BD
+44 (0) 1865 481 424
emea@teamquest.com

LATIN AMERICA:

MEXICO

Paseo de la Reforma 350
Col. Juárez
Mexico City 06600
+52 55 2881 6812
info@teamquest.com

ASIA PACIFIC:

HONG KONG

Room 2503, 25/F.
BEA Harbour View Centre
56 Gloucester Road
Wanchai HONG KONG
(+852) 3104 4998
info@teamquest.com

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