



## Accounting as the Basis of Civilized Computing — *IBM's Usage and Accounting Manager*

Analyst: Anne MacFarland

### Management Summary

The old saying that you cannot assign value to what you cannot measure has never been more relevant to the business of using technology. The more global the reach of the business, the more important its technology underpinnings become. While IT hardware has become less expensive, the cost of using technology in business still is painfully large. IT environments are used, increasingly, not merely to process transactions, but also as the principal way to leverage economies of scale in many parts of the business. Portals give a way to aggregate applications - to let workers do a myriad of tasks quickly and easily. Data is served up at the right time to the right people, and secure input from workers enters the large back-end systems that run the business.

Dedicated silos of redundant assets are an expensive way to go about doing things, if there is a choice – but for many years, it was the only inherently way to lower the risk of system downtime. As businesses started using IT for workloads with different requirements, they started matching the “box” to the application requirement – something made difficult by the foreknowledge that the use of the application might take off and that requirements change. Virtualization - and the consolidation of IT environments that it enables - saves many kinds of costs, including costs of hardware and software, environmental costs, and the service costs of administration and repair. Device health monitoring systems and workload management systems make these consolidated environments run well. Unfortunately, as more elements are shared, the traditional hardware-based asset valuation of IT services becomes insufficient. Furthermore, usage-based valuations are only effective if they include *all* the costs – all the hardware touched, software used, and other applications called on – that support a business service. Comprehensive accounting is the only way to arrive at a value that satisfies both providers and users of a service.

These days, nothing is simple. Commoditization of technology elements has decreased costs and lets many new players into the market. There are many modes by which to use technology, and many products from which to choose. An enterprise of even modest size and geographic scope uses technology with a myriad of price points in a number of ways. Many business processes are supported by a number of elements and many applications work with other applications to support the business. The challenge of choosing an IT strategy sensibly requires being able to compare the costs – all of the costs – that are involved in the various alternatives.

*IBM Usage and Accounting Manager (UAM)* is metering and billing software that tracks operational costs for the entire IT infrastructure, both hardware and software, and all kinds of assets, both physical and virtual. In addition, it uses business information to correlate the relevant IT infrastructure elements with specific business processes, and even specific deliverables (like qualifying a mortgage) within the business process. If you have been doing chargeback by divvying up the IT-cost pie by line of business, perhaps with a graduated tithe based on profitability, or if you have been charging back by the asset (at least for those you could find and determine a costing mechanism), now is the time to take a fresh look at your cost accounting. UAM doesn't just let you properly allocate dollars and cents; it also makes business sense, as it offers many ways to incent frugal business practices among users. For more details, read on.

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## The Road to More Civilized Computing

The ideal is one, not of federated fiefdoms, but of an integrated whole in which all elements are compensated for their contribution (and there is enough money to go around). This underlies many attempts at civilization besides the *more perfect union* mentioned in the U.S. Constitution. Organizational initiatives often have fallen short because they left out elements, costs, and values that were inconvenient or impossible to measure, and because there was an insufficiency of money to go around (often due to external forces doing the same kind of “civilizing.” IT systems are more finite and more measurable than human institutions. It would seem that valuation should be far easier. While a comprehensive aggregation of elements and valuations is very complex, correlating all the variables is something computers do extremely well. The inhibitors to a *more perfect union* of computing capabilities include the following.

- **A lack of standards to support both interoperability and effective management of the entireness of an environment at a reasonable cost.** This is not a matter of human administration, which arbitrates usage and its effect on the system, but of the instrumentation, collection, and correlation of the usages that support the *what* a business does.
- **A fear that there will not be enough computing to go around and that usage by some other part of the organization will impair local functionality.** This has been addressed by ample resource capacities, enforceable SLAs, and containers to corral the aggressive natures of some applications.
- **Proper valuation and accounting.** Accounting – the determination of the actual costs of producing a product or service on a sustainable basis – the monetizing of a process - is what rationalizes markets, supports civilizations and makes the cost effective sharing of IT resources a safe and reasonable thing to do. While money may be the root of all evil, accountability may be the root of all good.

## IBM Usage and Accounting Manager

IBM's *Usage and Accounting Manager* collects usage information from servers, networks, and storage. The server platforms supported include IBM *System z* and *System i* and *Unix, Linux, and Windows* servers. UAM collects information from subsystems, such as print servers. It collects information on storage utilization and the storage capacity used by applications. It can follow the mapping induced by storage virtualization and hierarchical storage management schemes (HSM). It collects information

### Data Aggregated by UAM

#### IT Asset Usage Metrics

- **Servers**
  - IBM System z
  - IBM System i
  - IBM System p
  - IBM System x
  - Unix, Linux, and Windows variants offered by other vendors.
- **Networks**
  - LANs, WANs, Novell, etc.
- **Storage**
  - SANs, Storage Manager, Backup, HSM, etc.
- **DBMSs and Transaction Managers**
  - DB2, Oracle, SQL Server, IMS, IDMS, ADABAS, Sybase, Informix, CICS, etc.

#### Supplier Invoices/Costs

- IBM, HP, EMC, Dell, etc.
- User device costs

#### Service and Shared Services Costs

- SLAs, Consulting, IT personnel, environments, networks, etc.

#### Budget Cost Structures

- Business Unit Data, etc.

Source: IBM

from partitions. It collects information on resource usage by virtual machines (including the overhead of the virtual machines themselves). It collects information from database management systems (*DB2, Oracle, SQL Server, IMS, and others*) and from applications (*e-mail, SAP, PeopleSoft, Dassault, WebSphere, etc.*). It collects information from application components and Java runtimes.

UAM also collects usage information about software – about the applications that are used by the business and about the middleware and management that support those applications. It can also incorporate business costs, both direct (IT purchases) and indirect (environmental and shared costs like telecommunications). It then correlates what is used, and how long and much it is used, with the business service (be it function, process or a deliverable) is accomplished.

With UAM, the enterprise finally can get a comprehensive IT accounting of what a business process costs to support. In-house operations then can be compared more fairly with the service offerings of service providers and those of the by-the-hour processing providers. As long as you take care that, the business-side services provided by each option are roughly equivalent.

## Benefits of Accountability

Interoperability and the efficiencies of co-tenancy are noble and fine ideas, but until the accounting covers all of the elements of the costs' stack and the valuation is there to make the accounting a clear matter of dollars and cents, civilized behavior becomes more a matter of belief, of passion, or good will rather than one of logical process. With the injection of logic and proper accounting, people can figure out how to make the system work best for them – how to schedule their routines to optimize whatever satisfies them – a lower cost, a faster process, etc.

**Comprehensive metering makes chargeback more accurate.** All costs related to IT support of a business process are included. Those that must be ascribed to overhead are fewer. Without comprehensive metering, the simplicity of asset ownership is compelling for many businesses. Proper monetization will let you rationalize your applications by using common services. Use of common services splits the costs of licensing and maintenance.<sup>1</sup>

**With comprehensive metering, the amount of unused capacity and cycles becomes evident.** Since you are paying energy costs twice – to generate the cycles and capacities and then, again, to reduce the heat they produce, idle cycles and unused spinning disks are something to be minimized. Billing alone will not reduce surplus capacity, and browbeating may be effective but may impair morale. Creative chargeback, however, can provide useful tools. If IT can charge less for off-hour processing, it can encourage users to plan for analyses they will need to use the next day. As stakeholders in a process get accurate information about the costs of their IT usage habits, and the surprising parts of their business processes that turn out to be flagrantly expensive, they may have suggestions. Without a shared value of a business process, such collaboration is difficult. The frugality that such collaboration encourages is not necessarily just a mantra of *less* repeated *ad infinitum*, but *more* spending properly in the *proper time and place*. Many opportunities to save money are just a matter of knowledge, capability, and forethought.

Proper accounting also gives your data center and your business the information to assess accurately outsourcing and by-the-CPU-hour offers. In many cases, your own data center will be able to do better, because it has the historic knowledge<sup>2</sup> to

<sup>1</sup> These include both the ongoing costs of human administration of IT systems and break/fix costs.

<sup>2</sup> This includes knowledge of the patterns of business activity and of the shifts in priority that area often very specific to a particular organization.

## More about UAM

- UAM V5.1 runs on an x86 Windows server (e.g., System x) or System z. UAM for z/OS consists of a Data Collector that interfaces with Tivoli Decision Support (TDS) for z/OS metrics. A client must have or purchase TDS with accounting option.
- The price for an x86 (e.g., System x) server of up to four processors is \$599. For larger processor-count servers, multiple licenses are required. The mainframe pricing is \$75,000 per server.
- UAM is complemented by *IBM Director*, which monitors the health of the environment, and *IBM EWLM*, which manages the workloads. It can run with IBM Director or as a separate, stand-alone application. UAM V6.1, available in the fall, will add capability to run in Unix in addition to Windows
- Quick Start services (up to 10 days) are available to get UAM up and running in an enterprise environment, and to transfer the skills needed to use it well.

Source: IBM

know where workloads can be shifted and assets can be shared. Eventually, IT expenditure should be like any other consumable. While there will be some power users who will brag about their vector analyses and the cycles it consumes, there are others who will brag about the budget they freed up by playing the schedules right (and even the power users may feel compelled to use things like grid to contain costs).

Together with the QoS assurance of workload management, the health assurance of *IBM Director*, and the isolation of virtualization, UAM will let you operate with confidence – and even co-host other people's workloads as well - to get a better return on your IT infrastructure expenditures.

## Conclusion

Comprehensive metering and billing is the basis of rational valuation. If your IT valuation is not as rational as you would like, consider the benefits of making it so. Consider the options that will become open to you, and the costs savings that can be discovered. IBM's UAM probably is a good place to start.



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- ***The Clipper Group can be reached at 781-235-0085 and found on the web at [www.clipper.com](http://www.clipper.com).***

### ***About the Author***

***Anne MacFarland is Director of Data Strategies and Information Solutions for The Clipper Group.*** Ms. MacFarland specializes in strategic business solutions offered by enterprise systems, software, and storage vendors, in trends in enterprise systems and networks, and in explaining these trends and the underlying technologies in simple business terms. She joined The Clipper Group after a long career in library systems, business archives, consulting, research, and freelance writing. Ms. MacFarland earned a Bachelor of Arts degree from Cornell University, where she was a College Scholar, and a Masters of Library Science from Southern Connecticut State University.

- ***Reach Anne MacFarland via e-mail at [Anne.MacFarland@clipper.com](mailto:Anne.MacFarland@clipper.com) or at 781-235-0085 Ext. 128. (Please dial “128” when you hear the automated attendant.)***

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