

Building a Better Infrastructure With IBM Middleware on System p

IT Accounting in a Virtualized
Environment

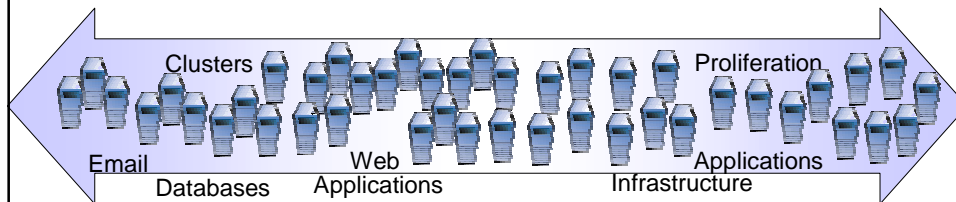
IT Accounting in a Virtualized Environment

Now that we have consolidated,
how do I account for multiple
clients sharing the same system?



Service Oriented Finance
CIO

Accounting for Sprawling Dedicated Servers



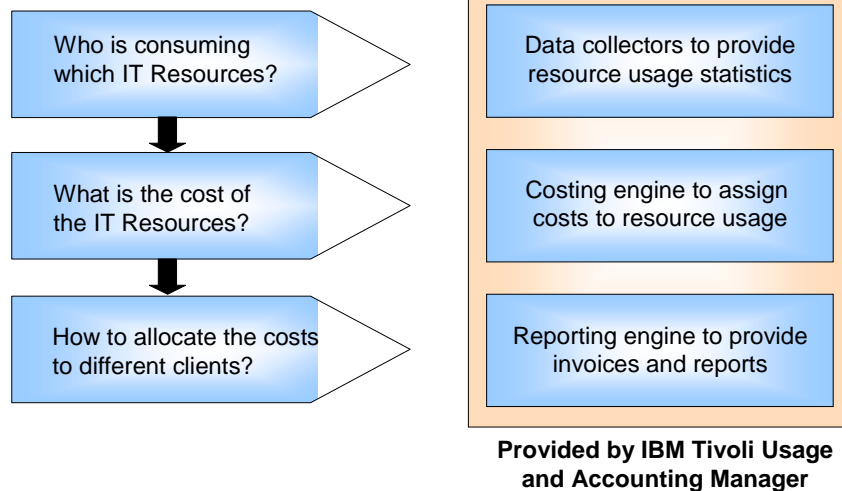
- Accounting is simplistic
 - ▶ One application = one server = one client that pays
- Systems are underutilized
 - ▶ Additional costs for hardware and software
 - ▶ More systems to administer and maintain
 - ▶ Increased costs for real estate, power and cooling

Accounting in a Virtualized Environment



- Higher utilization of systems, storage and network but the challenges are:
 - ▶ How to allocate costs fairly?
 - ▶ How to prove that the resources were used?
- **Need actual usage data for accurate accounting!**

The Client Who Uses the Resources Should Pay the Allocated Costs



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IBM Tivoli Usage and Accounting Manager

- Resource usage data collectors
 - ▶ Collectors are available for operating systems, middleware and applications
 - ▶ Uses native utilities to collect and forward usage information
- Costing engine
 - ▶ Assigns cost equal to usage x calculated rate
- Reporting engine
 - ▶ Creates invoices and reports

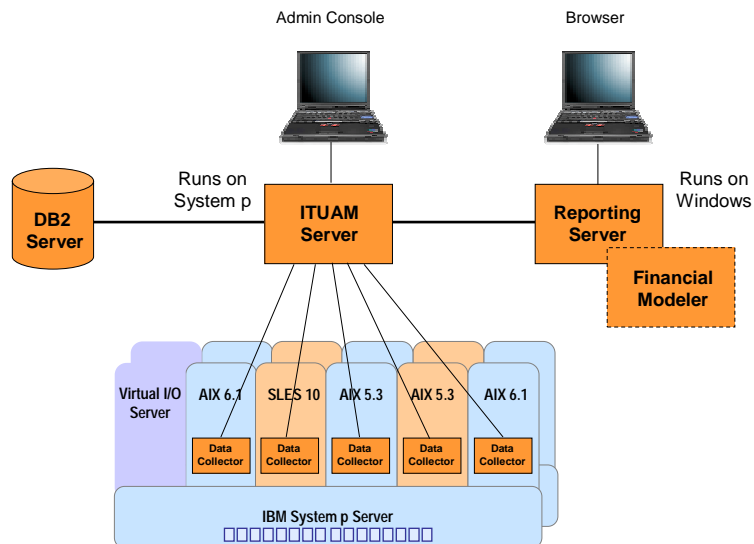
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IBM Has a Comprehensive Set of Collectors

Collectors for ITUAM			
ITUAM Base Collector Pack	<ul style="list-style-type: none"> Windows Server Linux AIX Solaris HP-UX 	<ul style="list-style-type: none"> RedHat SuSE i5/OS z/VM 	<ul style="list-style-type: none"> VMware Citrix Storage AIX Advanced Accounting Virtual I/O Server
TDS for z/OS Base	<ul style="list-style-type: none"> Mainframe Storage 	<ul style="list-style-type: none"> CICS Print 	<ul style="list-style-type: none"> DB2
ITUAM Enterprise Collector Pack	<ul style="list-style-type: none"> SAP WebSphere DB2 Lotus Notes Cisco Netflow Proxy Servers 	<ul style="list-style-type: none"> Tivoli Storage Manager Apache Oracle Microsoft Exchange Print Veritas Netbackup 	<ul style="list-style-type: none"> TPC for Data IIS SQL Server Sendmail File Transfer Sybase (Windows)
ITUAM Service Offering Extensions	<ul style="list-style-type: none"> ERP Systems Network External Services Internet/Telecom 	<ul style="list-style-type: none"> other Databases Human Resources Operating Systems 	<ul style="list-style-type: none"> 3rd Party Systems Output Devices Storage Sub-systems

IBM Tivoli Usage and Accounting Manager



Model for Cost Accounting in a Virtualized Environment

- Identify data center monthly costs (fixed and variable) in budget categories
- For each budget category:
 1. Measure usage of resources by each client
 2. Calculate a rate such that
rate = monthly cost / total usage
 3. Assign cost to each client
assigned cost = client usage x rate
- Create an invoice by totaling assigned costs for each budget category

Categorize Costs using the WebSphere Consolidation Scenario

System p One Time Charge

Server Acquisition	\$ 725,582
Connectivity Acquisition	\$ 38,322
Disk Acquisition	\$ 98,719
Software Licenses	\$ 80,699
Migration Cost	\$ 336,993
Total OTC (Cost of migration)	\$ 1,280,314

System p Annual Cost

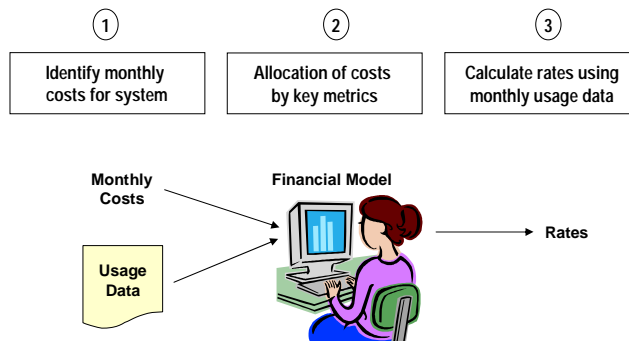
	Year 1	Year 2+
Power and Cooling	\$ 4,214	\$ 4,214
Space	\$ 1,125	\$ 1,125
Annual Server Maint	\$ 33,564	\$ 33,564
Annual Connectivity Maint	\$ 1,533	\$ 1,533
Annual Disk Storage Maint	\$ 3,949	\$ 3,949
Annual SW Support	\$ 1,499	\$ 17,339
Annual Ent. Network	\$ 13,824	\$ 13,824
Annual Sys Admin	\$ 82,889	\$ 82,889
Total Annual Costs	\$ 142,596	\$ 158,436

Acquisition Charges	Annual Costs
Server	\$ 145,116
Network	\$ 7,664
Storage	\$ 19,744
Software	\$ 16,140
Services	\$ 67,399
Environmentals	
Power	\$ 4,214
Space	\$ 1,125
Maintenance	
Server	\$ 33,564
Network ¹	\$ 15,357
Storage	\$ 3,949
Software	\$ 1,499
Staff	
Administrators	\$ 82,889

1. Combined Annual Connectivity Maintenance and Annual Ethernet Network Charges

DEMO: ITUAM Financial Modeler Example

Use the "Financial Modeler" Tool to calculate the rates required to recover the monthly costs

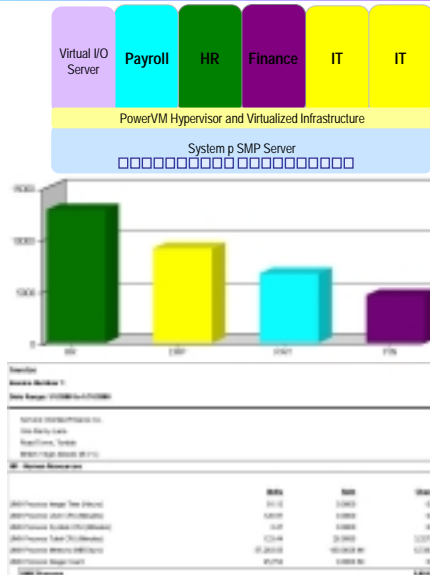


ITUAM Reporting Server

- View invoices online
 - ▶ Drill down for additional detail without assistance
- A wide range of reports are provided standard with the product
 - ▶ Custom reports can easily be created for specific needs
- Export reports to a file
 - ▶ Spreadsheets, PDF Files, Email
- Publish reports to the web
 - ▶ Report Format, Spreadsheet, PDF files

DEMO: ITUAM Reporting Server Example

- The demonstration system is shared by multiple clients
- The usage report shows how the costs are distributed for the month
- Each invoice shows a breakdown of charges for the month
- The drill-down capability shows specific resource consumption for the month



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IT Resource and Usage Accounting Benefits

- Supports Virtualized Environments
 - ▶ Identify costs and usage trends in large shared environments
- Increased Client (Business Unit) Satisfaction
 - ▶ Real usage = Accurate billing
 - ▶ Accountability = Improved services
 - ▶ Alignment between Business and IT costs
- Continued Infrastructure Improvement
 - ▶ Understanding costs can lead to managing costs
 - ▶ Usage comparisons can lead to more effective investments

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ITUAM Customer Examples

- Healthcare Insurer
 - ▶ System z – CICS, DB2, Batch and TSO. Normalization between 2 Systems. Rolling out UNIX and Windows. 168 UNIX and 300 Windows Servers.
 - ▶ Replaced 2 homegrown systems after merger. Corporate finance is the user and owner of the system. Wanted federated auditability. ITUAM only product to meet all RFP requirements
- Insurance and Financial Products Broker
 - ▶ System z, Unix, Novell and Windows. Primavera importing for labor accounting. Including inventory information, Storage Area Network (SAN) and telecom costs.
 - ▶ Memo billing now and will move to chargeback in the future
- Aerospace Manufacturer
 - ▶ Both System z and distributed systems. Billing \$18-20M per month across 5,000 cost centers. 40K pieces of hardware. Including labor, telecom and project costs. Feeding SAP GL and using web reporting.
 - ▶ Replaced RYO system
- State Government
 - ▶ System z, Telecom, UNIX, Windows, labor. Oracle, SQL Server, & Exchange
 - ▶ Wanted to replace multiple billing systems with a single integrated system and meet government audit requirements

Summary

Track resource usage and the associated costs in a Virtualized Environment with the IBM Tivoli Usage and Accounting Manager



IBM

