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Orb Data

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[TEC TO OMNIBUS: THE BUSINESS CASE FOR MIGRATION]

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TEC to OMNibus: The Business Case for Migration

IBM's published end of support date for existing Tivoli Enterprise Console (TEC) installations is September 2012 which is now less than 16 months away. In addition IBM has already announced end of marketing for TEC which means that no new copies of the product will be sold and therefore the TEC will have a shrinking usage base. As the current release of TEC is now over 3 years old and version 3.9 will be the last version released this means that for those who choose to wait until 2012 will do so with a 5 year old product.

The upgrade solution for the TEC is IBM's Netcool/OMNibus, an industry leading product bought from Micromuse in 2005 and with a proven heritage in the tele-communications industry. However the product is not free. For customers outside of an Enterprise License agreement and who have a current TEC maintenance agreement the cost is worked out in 1 of 2 ways:

- **Cost Differential Method** – This applies the documented cost of TEC (initial purchase and follow on purchases) as a reduction to the price of OMNibus.
- **Cost Unknown Trade Up Method** – Alternatively customers may upgrade to OMNibus through Trade-up Part Numbers in Passport Advantage (50% price of normal OMNibus parts)

Invariably as customers are being asked for money they will ask what the business benefits are and budget holders are asking for business cases to be written before they approve the spend.

This whitepaper sets out why I think OMNibus is a better product than the TEC and why there is a good business case for migrating. It sets out the sections that should be included in your business case and although not every customer's implementation will be identical this document should enable you to set out enough economic drivers to enable the business case to be signed off.

General Business Case Rules

Before we get to the specifics it is worth understanding some general business case rules so you are clear what you are trying to achieve when you start writing.

In general the aim of the business case should be to tell a rich, clear story of how the value proposition will work, specifically what will happen when the proposed software is used, what will be different and when, where, and how will the economic value be created. Importantly for each driver you specify you will need to estimate the economic benefits gained from implementing the proposal:

- What is the impact on revenue, if any?
- What is the impact on costs?
- If employee efficiency is a factor, will the headcount actually be reduced?
- Are there any one-time pickups of cash or reductions in capital needs?
- Is the benefit realised one time or on a recurring basis?

To answer these questions and quantify savings in the business case you will need to identify the fully burdened cost of a Full Time Employee (FTE) for each type of affected employee. These are likely to be people like Operators, Help Desk Users and System Administrators. The cost of these FTEs should include items like office space, employer tax, pension payments and all other benefits and will therefore be a significantly larger figure than you would expect. For example the current range of values for companies

we have already analysed are £320 - £450 per day. Additionally you will also need to know how many hours each type of employee at your company is expected to work (e.g. 7 hours per day) and how many working business days they are expected to work (usually about 230).

What should be included in the Business Case?

The business case should contain the following six sections specifying in each the reasons why OMNibus is better than other competitive products and how money can be saved:

1. **Why are you replacing TEC?** - This section should include the reasons mentioned in the introduction to this article.
2. **Reduce Capital Expenditure** - Reduce Hardware costs, simplify the architecture and alleviate future TEC hardware purchases and storm failures
3. **Improve Operational Expenditure** - Utilise normalisation (The process of taking raw input events and extracting individual fields), de-duplication, aggregation, correlation capabilities, as well as time, device, and service based event reductions.
4. **Maximise Service Availability** - Leverage hundreds of out-of-the-box integrations, with included domain intelligent event reduction rules, to monitor end-to-end infrastructure status and health.
5. **Resiliency and Maintenance** - Leverage proven availability and reliability, with trusted system redundancy, failover and security.

You should also include the following section as you will invariably be asked this about any new expenditure for a similar product that you have already bought.

6. **Why IBM?** – A definition of why you have chosen IBM including what makes IBM unique, where has IBM previously delivered value in similar circumstances, how did the customer realise the value in those examples, what was the payback/ROI and can you anticipate similar results here?



Some example calculations are shown throughout the document. These are identified by the icon show to the left.

Reduce Capital Expenditure

The section on capital expenditure should include details on reducing hardware costs by simplifying and reducing the architecture costs and alleviating any future TEC hardware purchases/failures through the capacity provided by OMNibus.

Hardware Costs

Event Performance

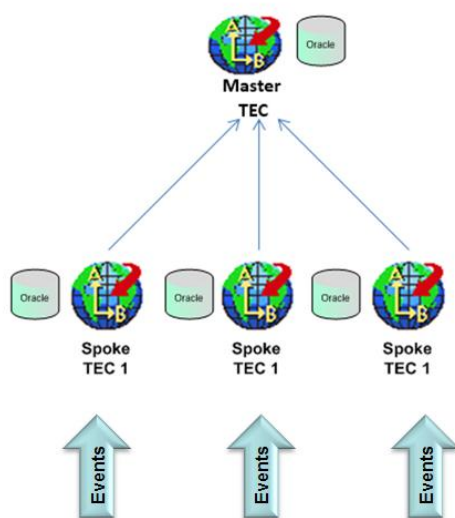
The event throughput for the ObjectServer is recognised to be superior to the TEC due to the efficiency of the in-memory database, and the triggers that perform event correlation. The event throughput of the TEC Server is about **25 events/second** (without any rules running) whereas an ObjectServer can handle many hundreds of events per second (depending on the hardware specification and other loadings). In lab conditions IBM have seen **2000 events/second** on a Blade server running Linux. This improved performance reduces the required hardware investment because less resource is required for an equivalent event throughput and this reduces the capital outlay from a hardware perspective, but also reduces the on-going support costs.

Simplifying the Architecture

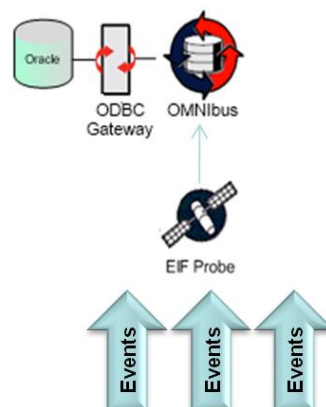
Although the hardware requirements for an OMNibus server are similar to that of a TEC server, the equivalent hardware specification used for an OMNibus server can take a significantly higher workload. This would enable any spoke TECs to be integrated into a single OMNibus server without any performance degradation.

Therefore a three spoke TEC architecture with 4 databases can be migrated to a single OMNibus server with a single database (which actually might already exist as part of the IBM Tivoli Monitoring Warehouse). This is shown in the diagram below:

TEC Master/Spoke Hardware Architecture



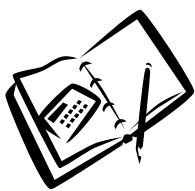
OMNibus Simplified Architecture



Hardware Savings Example

Quantifying the cost savings from Hardware reductions require an understanding of the hardware support costs. To calculate these costs you will need to gather the following information:

- What is the support cost for a CPU or server? (Some companies base their costs on CPUs rather than servers because they use virtualisation).
- What is the support cost for the RDBMS used? (Each TEC server requires an RDBMS such as Oracle to function).
- What is the power used by a typical server? This is increasingly important as Google in 2010 estimated that if server power consumption grows 20 percent per year, the four-year cost of a server's electricity bill will be larger than the \$3,000 initial price of a typical low-end server with x86 processors.



Support Cost per CPU? e.g. £840

Support cost per server for an Oracle Database? e.g. £2750

Power Cost per Server? e.g. £750

Example

The removal of a 4 CPU server containing Oracle will produce a cost saving of about £6,860.

Removal of 3 servers will result in an annual saving of over £20,000

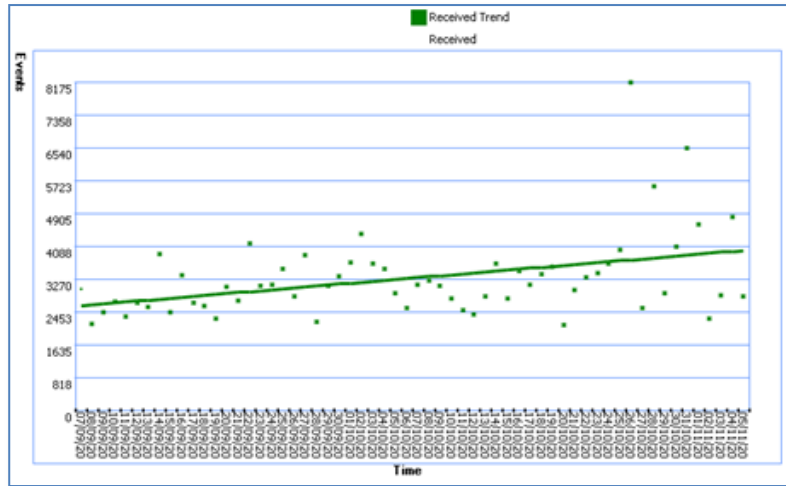
Understand the Event Trend

When an event arrives at the Event Server it is stored and time stamped by the reception engine before being passed onto the rules engine for processing. Sometimes the rules engine can become stuck, or the number of events arriving is too great for the rules engine to process. When this happens events are put firstly into a WAITING state and then once the buffer in memory is full they are put into a QUEUED state.

Generally Event Servers should have zero events for QUEUED and WAITING, however it is acceptable to see some buffered events queued for an instance. If however the QUEUED events do not reduce, then there is a problem. Also if there are WAITING events there is a problem that can cause the Event Server to fail or hang. The business case for moving to TEC can therefore be strengthened by gathering the following information:

- Number of Events per Day
- When and if events start Queuing?
- When and if events start Waiting?

If you can record when and if your TEC architecture reaches its limits and how often events start queuing you can then plot this against a predicted trend in growth of events and make an estimate when the architecture will need to be upgraded.



If it can then be shown that future failures will be averted by moving to OMNibus this can be shown as a monetary value. To do this you need to know how much will the failures cost and how much any new infrastructure will cost to avoid the expected failures.

Reduce Operational Expenditure

The section on operational expenditure should include details on how day to day costs can be reduced by decreasing rulebase development time, improving project implementation time, reducing the number of actionable events (leading to fewer operators) and lastly quicker resolution of events and better quality events leading to a rapid MTTR.

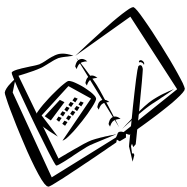
Simplified Rulebases

Development

The development of the rules (or triggers) in OMNibus is made simpler by being developed in ANSI SQL which although not simple are significantly easier than the TECs PROLOG rules engine. In addition as many triggers are provided out-of-the-box, implementation is further simplified. During previous migrations IBM has already migrated the top TEC rules into OMNibus automations.

We estimate that for all these reasons rule base/trigger development is about **30%** quicker than TEC rulebase development.

To put these advantages into a business case you need to quantify the hours spent developing rules either through consultancy or in-house.



Calculate the number of hours spent developing rules? e.g. 100

Cost

The cost saving can be calculated as:

Development hours x (FTE cost / hours in business day) - 30%

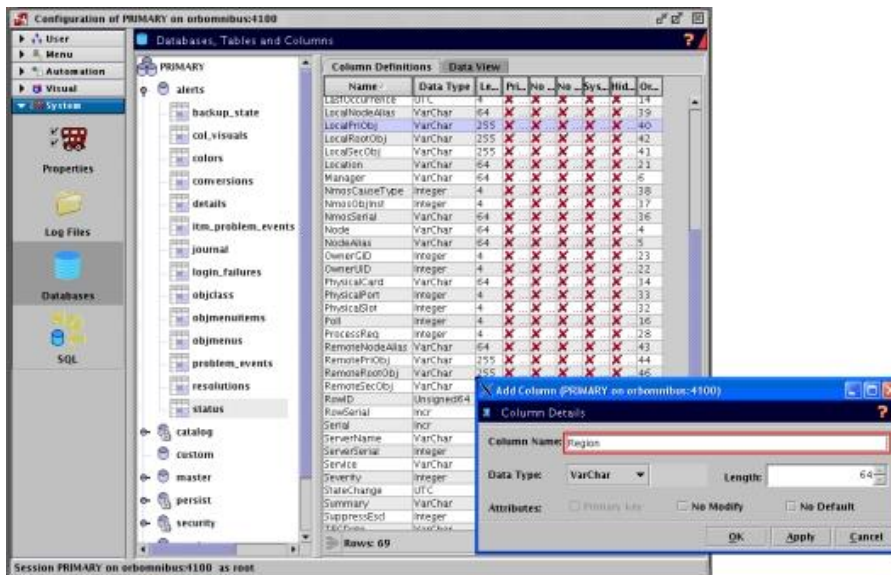
e.g. $100 \times \text{£}350/7 = \text{£}5000$

$\text{£}5000 - 30\% = \text{£}3,500$ (£1500 saving)

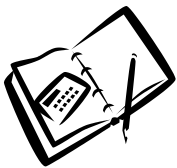
OMNibus Schema Modifications

One of the key benefits OMNibus has over the TEC is the ability to easily customise the event server database by adding or modifying new tables and columns within the running events list. The equivalent change in the TEC would need a restart of the server. For example to add a slot to the TEC would require a change to a BAROC file, a recompilation of the rulebase and then a restart of the TEC in which time live incidents could be delayed or missed all together.

Adding a field to the Object Server's event table (alerts.status) can be accomplished either through the command line or the GUI without restarting. Once the new field has been added (as shown below) a restart of the Object Server isn't necessary. However, all event lists or consoles that are open need to be refreshed. This is quite easily accomplished by performing a 'resync' from the event list GUI. Once this has been done the new field can be added as a column to the event list.



To put the advantages of the simplified rulebase into a business case you need to quantify the number of changes implemented a year in your organisation. OMNibus would remove the need for these scheduled outages and the downtime associated with these. Also think about when the changes are performed. If the changes are done out of hours then is overtime is generally paid. These costs can mount, especially if the change is performed by a contractor.



Calculate the number of rulebase changes you have a year? e.g. 25

Each change will take at least 1 hour

Cost per hour of an administrator? e.g £350/7=£50 x 1.5 (overtime)=£75

Example Cost

25 x 1 hour = 25 hours

£75 x 25 hours = £1875

Also add in the cost for how many staff lose productivity without event access.

Fewer Events

De-duplication is a good example of how money can be saved through the simplified rules.



For TEC rulebases the **dup_detect** facet, defined in a BAROC file against a particular event attribute and class, is used to determine whether two events are the same. You then have to write a rule using a rule predicate such as **first_duplicate** to detect any duplicate events. Any subsequent changes to the BAROC file require the rulebase to be recompiled, reloaded and the Event Server restarted. This is done manually for any duplicate you wish to define.

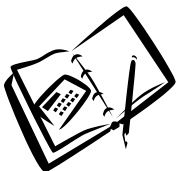
Whereas with the OMNibus server de-duplication is significantly more dynamic and flexible. Duplication of events is defined by a unique Identifier attribute and is often defined at the probe level by concatenating several other attributes to form an Identifier key. The Object Server then uses this unique field to compare events and match those with the same value automatically. This allows for similar events to be dropped without any rule modifications.

This allows for new events to be reduplicated by default without new rules or development of any type.

OMNibus also uses Probe rules to reduce events at source.

Saving money through less Events

Using automated deduplication, probes rules and auto-clearing of events you can expect to reduce the number of events which in turn will lead to less work for the operators and therefore a reduction in headcount. Some customers have seen reduction of events by over 90%. A more conservative estimate is 25%. This could lead to a head count reduction or reallocation



Sample Calculation

Current Events per day? e.g. 2500

Expected percentage reduction in events? 25%

Number of Operators in a NOC shift? e.g. 5 per shift (3 shifts)

Events per Operator per shift? e.g 166

Cost per day of an operator? e.g £250

Saving

Events: 2500 – 25% = 1875

Events/Op: 1875 / 166 / 3 = 3.75

Old Cost: 365 x 5 x 250 = £456,250

New Cost: 365 x 3.75 x 250 = £342,187

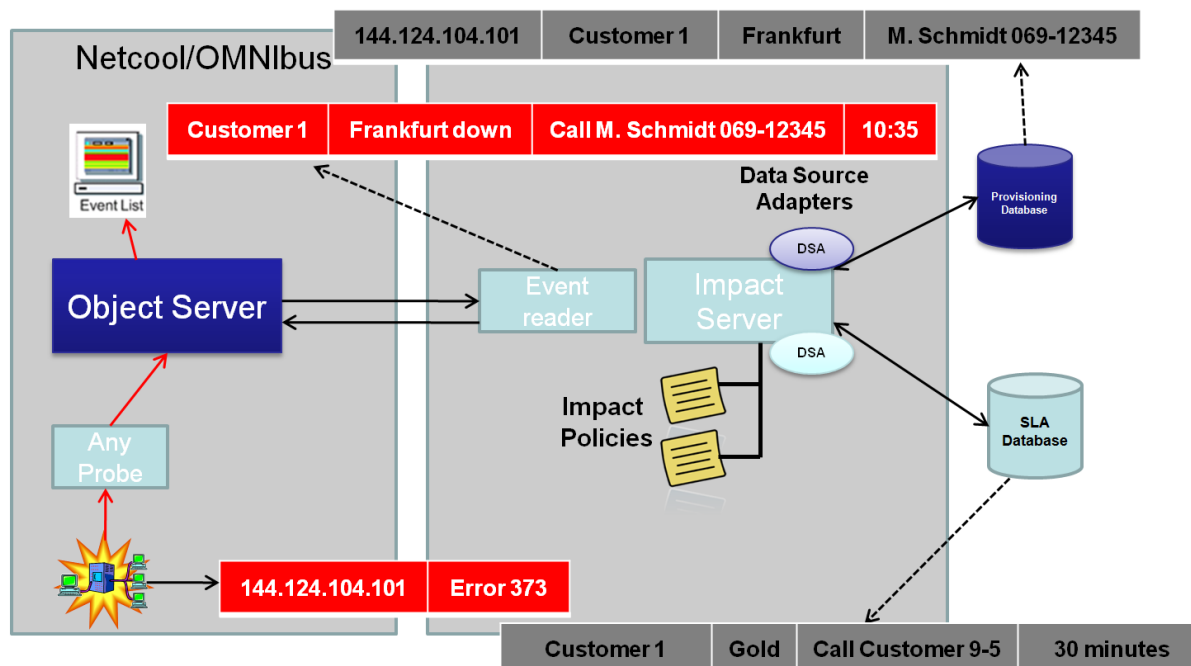
Total saving: £114,623

Benefits of Tivoli Netcool/Impact

Netcool/Impact is now included as part of the OMNibus license for Tivoli data sources. No equivalent tool is available in the TEC therefore all benefits from Impact should be put into a monetary value and added to the business case.

As noted above, one way to determine what benefits you can achieve with Netcool/Impact is to analyse its core features and see how you can put them to use in your environment. The core features of Netcool/Impact are:

- **Automation** - Netcool/Impact allows you to automate event management tasks that you would otherwise have to accomplish manually, or would not be able to accomplish at all.
- **Event source access** - Event access allows Netcool/Impact to tap into the event stream that flows from Netcool probes and monitors into the Netcool/OMNibus ObjectServer. This feature is an essential part of most implementations of the product.
- **Data access** - Data access is the feature that allows Netcool/Impact to connect to external data sources, such as SQL databases and LDAP servers. To understand how this feature is important, you can think about all the ways you use data that is external to Netcool/OMNibus in your network management environment. You might have one database that contains Provisioning information and another database that contains information about SLAs and customer service. This information can be added into an event to enrich the information an operator receives.



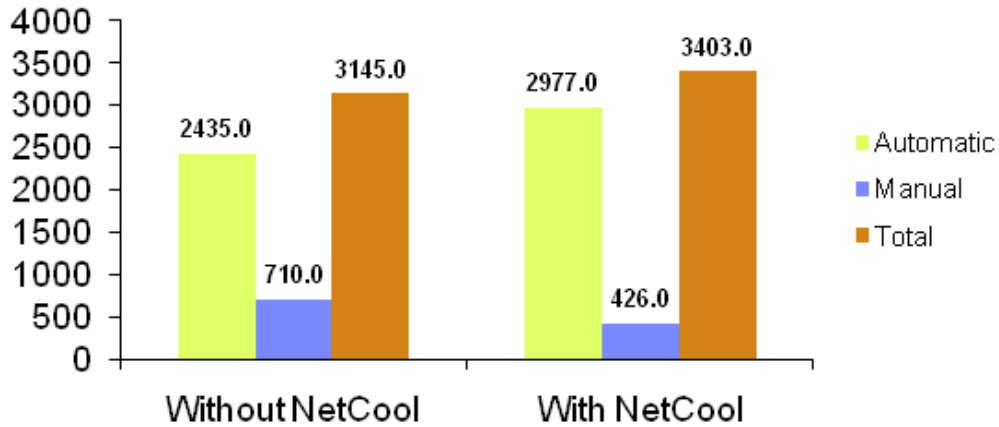
- **Integration with third-party applications** - Tivoli Netcool/Impact provides interfaces to a wide array of third-party applications, including GE Smallworld, Portal Infranet, and TIBCO TIB/Rendezvous. Tivoli Netcool/Impact can interface with a wide variety of other applications by interfacing directly with their underlying databases.
- **Predefined actions** - Netcool/Impact provides a built-in set of predefined actions that you can include among your automated tasks. One of the most important of these tasks is the embedded e-mail client software. You can use this software to send e-mail notifications to administrators and users when faults or other conditions on your network occur. Another important predefined action is the ability of Netcool/Impact to execute shell commands, scripts, and applications on local or remote systems.

Customer Production ROI Example

For this information to be useful for the business case you need to quantify it and define the real economic benefits of implementing Netcool/Impact. To do this we can see what affect it has had on other customer's implementations.

- **Increased level of automation** - 60% time saved due to increased number of events managed by Tivoli Netcool via automatic check with external data-sources
- **Increased throughput of monitoring process** - Time to Acknowledge alarms has been reduced due to the re-use of resources previously used for managing "simple" alarms
- **Reduced time to dispatch Trouble Tickets** - Time to open tickets has been reduced due to availability of additional information (inventory and field work force) on alarms
- **Centralise / Consolidate monitoring process** - Single operations console (instead of 8): optimisation and consolidation of existing monitoring processes

In this example there was a 34% Time Saving in Alarm Monitoring process reducing FTE need in central NOC.



These figures show that using Netcool/Impact the Mean Time to Repair (MTTR) will be improved by as much as **30%**. Although you could use this figure I would suggest that for a business case you should be more conservative and assume **15%**. This could lead to a head count reduction or reallocation. To calculate the figures you will need to know your current average MTTR which should be available from your service desk.



Sample Calculation

Current average MTTR? e.g. 2 hours

Expected MTTR reduction in events? e.g. 15%

Cost per event? e.g. £114 (based on operator cost for 2 hours)

Current Incidents per day? e.g. 250

Saving

New MTTR: 1.7 hours

Old Cost: 250 x £114 = £28,500

New Cost: 250 x £96.9 = £24,225

Saving per Day: £4,275

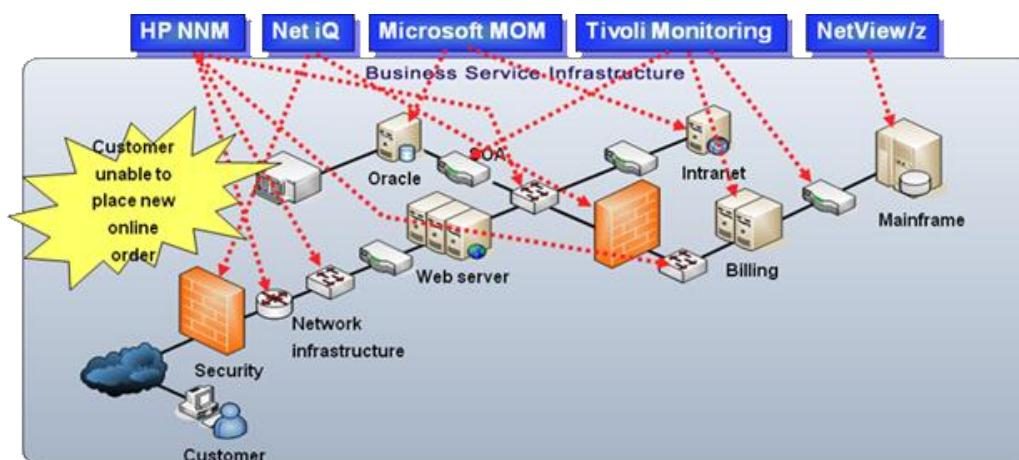
Total Saving: 261 x £4,275 = £111,5775

Maximise Service Availability

The implementation of OMNibus allows you to leverage hundreds of out-of-the-box integrations, with included domain intelligent event reduction rules, to monitor end-to-end infrastructure status and health. OMNibus simplifies the integration of 3rd party tools with the use of *Gateways*. These enable the export or import of data from the ObjectServer, the manipulation of that data and subsequent insertion into an external application.

Manager of Managers

As organisations evolve from silo-centric to service-centric operations, it makes economic sense to develop a common "manager-of-managers" view that integrates various monitoring tools across distributed data centres and network operations centres (NOCs).



This allows companies to leverage their existing management tools such as MOM, HP Network Node Manager into a single pane of glass meaning that you make the most of your existing tools (using simple gateway integration) but still allowing the NOC to see all events consolidated into a single event database. This in turn sorts out the "noise" from the critical events, correlates related events across disciplines and across data sources and then automates responses where possible. This has the affect of improving IT service availability while reducing operational costs.

This is especially important where companies are merging.

Service Desk Integration

ITIL says a Service Desk function is needed for Incident and Problem Management and as single point of user contact. If integration between monitoring tools and the Service Desk has not yet been established the use of OMNibus gateways can help with the automation of incident management. The Service Desk and process management capability will enable incident and problem resolution to be automated. This provides visibility of current health status and performance against basic SLA criteria.

Why can this save money?

Implementation of Service Centric Manager of Manager or integration of the Service Desk function can reduce the MTTR of Incidents by making events get to the right person much quicker.



Faster resolution of incidents 10%

Savings

Total Operator Cost – 10%

e.g. 5 Ops x £250 x 230 (number of days in a year) = £ 287,500

Saving of 10% = £28,750

The savings to the business of actually having the service running could also be added!

Resiliency and Maintenance

All production event solutions must be designed to be resilient or have a disaster recovery plan. The solutions employed for TEC Server disaster recovery invariably required significant investment of time and money for their design, testing and implementation. The Netcool/OMNibus solution includes an out-of-the-box, automated failover/failback function for the ObjectServer that encompasses automated failover and failback of all clients, including the probes and the desktop clients, both the Native Desktop and the WebTop clients. This reduces capital expenditure for the design, implementation and maintenance of the Netcool/OMNibus solution when compared to TEC Server.

Hardware Failure

Most event solutions are designed with some form of resilience or disaster recovery plans. This may be based on a simple back-up and restore, or a more expensive architecture specific clustering technology. However even the more advanced HACMP configurations that are commonly used for TEC solutions take time to switch to the secondary server. This can mean anything from 5 to 30 minutes of downtime in which Operations will have no visibility of infrastructure related events. In this time live events may be lost because the TEC gateways 64k cache of events will not be enough during a busy time.

OMNibus has a seamless failover option.



Calculate the number of failures/failovers you have a year? ____

Each failover can take 30 minutes to recover

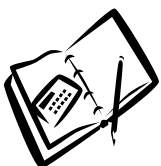
How many staff lose productivity without event access? ____

Cost

**Number of failures x 30 minutes x number of operators x (FTE cost/ 14) =
£xxxx**

Software Failure

If there is a software corruption either with the database or the TEC, HACMP will not offer any resiliency at all. In these cases the support teams would need to restore or rebuild the environment resulting in multiple hours of downtime. **OMNibus offers software resiliency as well as hardware.** As the virtual server relies on 2 separate instances of the software being installed the chance of a database or software corruption occurring are minimal. There is no over-head to maintaining the pair of servers as Netcool gateways can synchronise event data in a bi-directional flow between two Object Servers. This is known as a Bi-Directional gateway.



How long does a TEC take to rebuild from scratch? ____

e.g. A TEC rebuild can expect to take at least 4 hours.

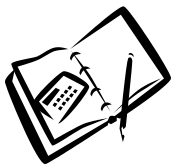
How many failures were there last year? ____

Cost

$$\text{Hours to Rebuild} / 7 \times \text{number of operators} \times \text{FTE cost} = \text{£xxxx}$$

Software Upgrade

If a software component such as Oracle requires an upgrade the TEC will need to be stopped, or re-configured onto another TEC before this can take place. As there are 2 OMNibus servers it is possible for one of these to be upgraded while leaving the other running. This reduces capital expenditure for the design, implementation and maintenance of the Netcool/OMNibus solution when compared to TEC Server. **OMNibus allows for zero downtime administration meaning that upgrades and changes can be made without user downtime.**



How many scheduled maintenance slots are there each year?___

Each component upgrade maintenance slot can be expected to last at least 4 hours.

Cost

Scheduled maintenance slots x number of operators x FTE cost x

(4 / 7) = £xxxx

Why IBM?

When you try and justify any software purchase you will inevitably be asked why you have chosen IBM over other vendors and also whether there are products that could be bought that are either better or cheaper. In these circumstances you should answer the following questions in the business case:

What makes IBM unique?

There are other products that can act as a Manager of Managers however IBM has some advantages over other vendors.

- OMNibus delivers a central point of real-time service management for business applications, network devices, Internet protocols and security devices
- It enables you to identify and resolve the most critical problems with automated event correlation, isolation and resolution capabilities
- It consolidates data in operational silos into real-time Web dashboard views with customizable displays of events, service views and operational indicators
- It supports current and evolving standards and uses approved cryptographic providers to help ease security audits
- It utilizes customisable lightweight agents to collect business and technology events from more than 1,000 sources in real time
- Provides tight integration with the IBM Tivoli Monitoring family to measure performance and user experience with business applications and to monitor Tivoli Netcool/OMNibus itself—generating alarms based on user-defined thresholds
- Offers operations management software that integrates with the broader Tivoli portfolio for a single view of operations, including cross-domain correlation, and common visualization, navigation, security and reporting and launch-in-context capabilities

Gartner in its IT Event Correlation and Analysis report says that Tivoli has the “most comprehensive breadth of coverage in the Magic Quadrant”.

More importantly the cost of buying a product from scratch will be significantly more than the cost of migrating TEC to OMNibus.

Where has IBM previously delivered value in similar circumstances?

Over 130 TEC to OMNibus upgrades have been completed including Harley Davidson, Ford, Honda, Reuters and St Paul’s Travellers.

State Street and the University of Pittsburgh Medical Center have realised tangible benefits and value of upgrading from TEC to OMNibus and Nationwide and Star Technology are available as telephone reference customers and also presented at Pulse and other IBM events.

How did the customer realise the value in those examples?

The following figures were reported by a CIO of a US manufacturer one year after performing an upgrade from TEC to OMNibus.

- Critical Events decrease 91%

- Downtime Decreased by 29%
- Overall Availability Increased by 3 %
- Root Cause identified and resolved 17% Faster

Can we anticipate similar results here?

Of course the answer will be different for each customer but if implemented properly OMNIbus can get a good Return on Investment. When you create your project plan build financial milestones in so that the project is designed to create value from the start. This will ensure that you have similar results that have been seen elsewhere.