SOLITAIRE INTERGLOBAL

Supercharge Oracle Products with PureFlex Systems

Efficiency and resiliency for your Oracle deployment with IBM PureFlex™ System

1. Introduction

In the marketplace, increasing number of vendors are offering converged infrastructure IT solutions. These solutions target rapid system deployment with pre-installed software, configured computing power, storage and networking, while addressing complexity by providing a level of integrated management. In this arena, the players include the IBM PureFlex System, which integrates IBM architectures (POWER® and x86), storage, network, and tools to allow customers the ability to quickly deploy new systems. The converged infrastructure offerings are especially appropriate for package or ERP deployments (e.g., Siebel, PeopleSoft, Oracle E-Business Suite, etc.), since they can be expedited prior to arrival at the customer site. Oracles products are prime candidates for this type of deployment, although different platforms integrate with Oracle products at various levels, affecting the resulting efficiency, speed and flexibility of the deployments.

The selection of the optimal platform for Oracle product deployment must include technical and business factors, but the overriding perspective is a business one. Since the impact of platform selection for Oracle product deployment is a difficult one to quantify on this level, IBM engaged Solitaire Interglobal Ltd. (SIL) to conduct surveys, gather data and perform analysis to provide a clear understanding of the benefits and relative costs that can be seen when organizations implement IBM PureFlex platforms as part of their Oracle IT architecture. This analysis has been primarily directed at the value of that platform use from a business perspective, so that those whose role it is to provide business leadership can understand the benefit of the IBM PureFlex architecture in deployment and operation of Oracle components.

During this study, the main behavioral characteristics of software and hardware were examined closely, within a large number of actual customer sites (11,300+). All of these customers are organizations that have deployed Oracle products on a converged infrastructure as part of their production environment. The information from these customer reports and their real-world details is invaluable for understanding of how the choice of platform can affect the organization's costs, risk and strategic positioning in the current marketplace. In the analysis of this data, a series of characteristics were derived that affect the overt capacity, efficiency and reliability of the environment and its affects on operational and business performance. These characteristics have been examined within a business framework, since that is the perspective that is needed to make an informed decision.

2. Findings

The purpose of this analysis was to examine the real-world impact on businesses that deploy IBM's PureFlex platform to host Oracle products, compared to those deploying Oracle products on other converged infrastructure solutions such as offerings from Cisco, Oracle, and HP, etc. The metrics used to analyze the differences in platforms were both objective and subjective. The objective metrics include reported data points on costs, run times, resource usages, and so on. The subjective metrics include responses on various levels and sources of customer satisfaction and perception. While overall customer satisfaction uses a variety of qualitative and quantitative measures, it still provides an end-result measurement of deployment success for the customer. A few of the highlighted findings can be seen in the quick summary below.

<div align="center">*Quick Summary*</div>

Category	Commentary	Quick Byte
Customer Satisfaction	The larger the deployment and the more comprehensive the Oracle product deployment, the higher the satisfaction for IBM PureFlex platform deployments.	Fewer end IT user complaints and reliable operations make management happier across the board.
Security	The overall increase in security breaches is of growing concern for all areas of an organization, and is fast becoming a critical consideration in the selection of IT architecture.	No reported security breaches of AIX operating system or PowerVM virtualization in study period or organizations.
Total Cost of Ownership (TCO)	Whether it is TCA or TCO, PureFlex is a cost-effective choice.	PureFlex TCO saves as much as 76.81% compared to less cost-effective options.
Availability	As the environment gets more highly leveraged, availability becomes more critical. PureFlex platforms show higher availability, with downtime as little as 20% of other options.	Reliable Oracle product operations on PureFlex mean higher availability.
Risk	The reported risk of deployment is considerably better for PureFlex Oracle implementations, reducing exposure to as little as 34.37% of the risk for other options.	Flexible and powerful functions to share resources greatly lower the risk of deployment on PureFlex platforms.

These key findings are all substantial reasons to consider PureFlex platforms for an organization's Oracle deployment.

2.1. Overall Business Perspective

Ultimately, IT and technology are designed to support business functions. So the primary perspective of the study was the view of the technology by an organization's business leaders, including executive, line-of-business and technical management. Further focus is delineated in the main study document, where the technical management perspective is examined separately from that of general business.

The patterns of operations from the study organizations have been grouped into similar categories and then compared to identify their affect on business metrics. These metrics are:

- Customer satisfaction
- Security
- Total cost of ownership
- IT stability, risk and reliability
- Agility (time-to-market)

Each of these business metrics has measurable and significant differentiation when the projected IBM PureFlex deployment solution is viewed. The more granular business metrics are those measurements that show how a specific measure of success is different in the general population of the implementers versus those that have deployed PureFlex. These metrics are fairly broad in coverage and touch on areas of financial consideration, as well as organizational quality. All of the metrics have been normalized on a work-unit basis[1], and categorized by levels of organization size (small, medium, large and very large) using the medium company average as the base.

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[1] *Work-unit basis has been defined using the published International Function Point User Group standards and are based on function point (FP) analysis.*

Customer Satisfaction – Executive Management
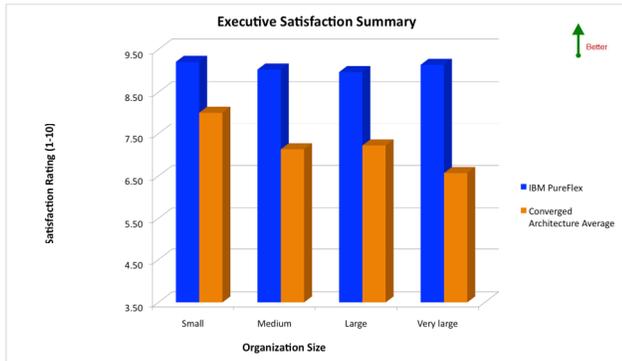
The ultimate metric on a successful implementation is *customer satisfaction*. SIL tracks this split out between the executive management and the operational input. The satisfaction of the customer executive management about their IT systems tends to focus on the application usage. The satisfaction with IT implementation and operation provides the most general metric for evaluation. While this is a subjective rating, it still provides the business' actual perception of success.

The advantages seen by the reporting clients show high satisfaction in the Oracle deployments run on PureFlex, much of which can be attributed to the number of complaints that the executives reported from their customers and users of those systems. The accompanying chart shows the reported average monthly complaint count for the different platform groups. These complaints have been restricted to continued operational issues, and exclude complaints associated with missing and desired application functionality. The three top reasons cited by executives from the reporting organization are:

1. Very rapid deployment
2. Smooth running operation with little downtime and complaints
3. Adherence to planned budget levels
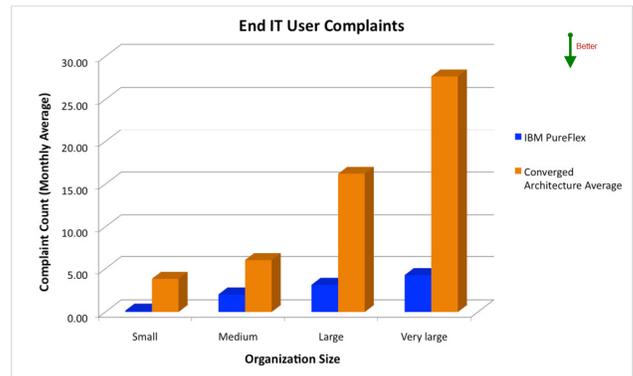
Customer Satisfaction - Operational
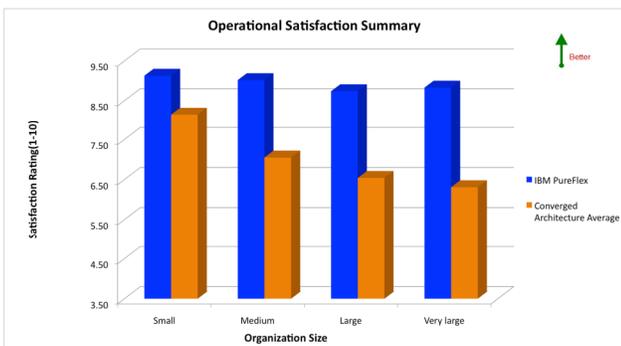
The operational perception of the customer, based on a variety of component metrics (e.g. support levels, communication, price, etc.), demonstrates satisfaction and success at the most generic level. This metric examines the feedback from the operational side of the organization. It comes from information reported both by the IT departments and the line-of-business (LOB) groups. The satisfaction of the IT operational staff and the LOB with the PureFlex Oracle deployments reflect the reliability and resiliency of the platform as a deployment choice. More than 99% of the reporting customer cited one or more of the following highest ranked reasons for satisfaction:

1. Smooth running operation with little downtime and complaints
2. Consistent runtimes and load
3. Ability to shift resources as needed
4. Impressive management tools

Security

The security for databases and ERP systems, including Oracle products, can be very challenging. The mixture of application modules, user profiles, plug-in components and so on, provide many avenues for security breaches. If the Oracle database and application security contributions are assumed to be the same across all the platforms, then the underlying security in the platform architecture is identifiable. This pervasive security layers provides additional protection for customer process, data and intellectual property. The chart shows the platform security breaches that were reported in the study organizations for their Oracle production operating environments. It is notable that there were no reported security breaches for IBM Power operating system during the entire study period.
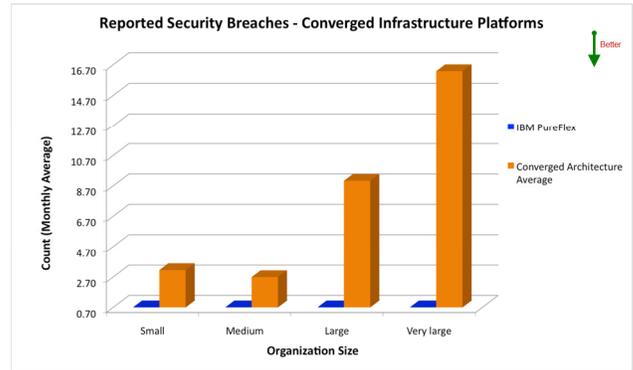
Overall Expense (TCO)
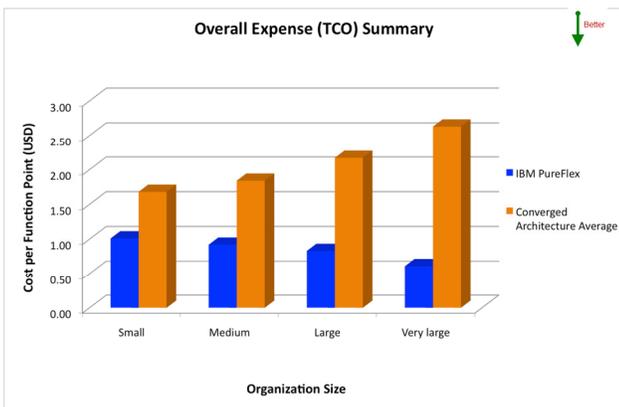
This cost perspective looks at the total cost to the corporation during a specific time period. This is normalized on three bases: employee, sales revenue and legal entity count. These expenses span all of those included in the operational cost metric and are supplemented by expense contributions for physical plant, corporate overhead, long-term investments, etc. It should not be viewed in isolation, since extraordinary expense patterns for individual organizations may cause minor variance in the exact comparison values. Instead, it should be viewed as indicative and providing a general range.

The IBM PureFlex and Oracle deployments show lower overall expenses, with the costs associated with the PureFlex platforms as little as 23.19% of competitive offerings over a wide range of organization sizes. It should be noted that this TCO comparison should be viewed in conjunction with availability and downtime metrics.

The cost of acquisition is frequently perceived as higher with the PureFlex platforms than for other converged infrastructure platforms, although the reported data does not support this. Any disparity in cost levels is increased over time, as the defining metric switches from TCA to TCO. The chart shows the both the TCA and TCO over a period of three years of actual cost or project cost if the system has been in operation for a smaller period. The set point for comparison is once again the medium-sized average deployment TCA. Since the TCO holds true as a long-term metric, well past the usefulness of the TCA, the TCO is the defining cost metric for this study.
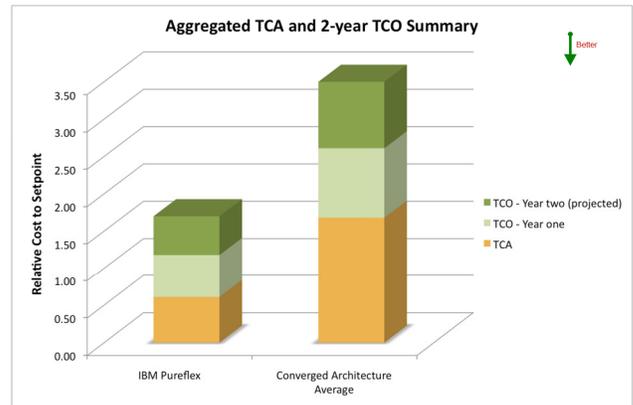
The difference in TCO among the solutions is based largely on the lower expenses for the efficient deployment and operations of the Oracle implementation and the lower overall cost of the solution, including staffing. More than 96% of the reporting organizations cited a consistent pattern of differentiation in three main areas:

1. Lower staffing costs overall (due to tools, stability, etc.)
2. Lower licensing costs
3. Lower datacenter costs (environmental, facility, etc.)

Staffing

An underlying factor that shows itself in many other areas is the effectiveness of the interface between the technical user and the infrastructure and the subsequent effect on staffing. A general view of the full-time staff position equivalents was reviewed to provide a general metric for the platform comparison. These levels are those required to maintain a "gold standard" environment for each deployment option. The set point for comparison was selected as the staff level for a medium-sized organization average deployment. The noticeably lower staffing level for PureFlex deployment and use is directly attributable to an efficient unified workflow, as well as a substantially different mechanism to handle the allocation of virtualized resources. The normalized staffing levels for PureFlex deployment are smaller than those for the competitive offerings by as much as 32.65%.
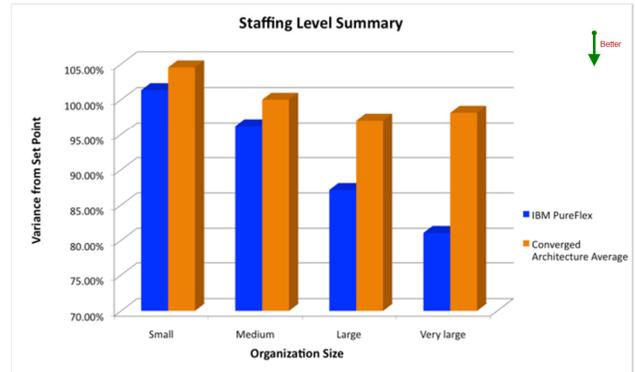
IT Stability, Risk and Reliability
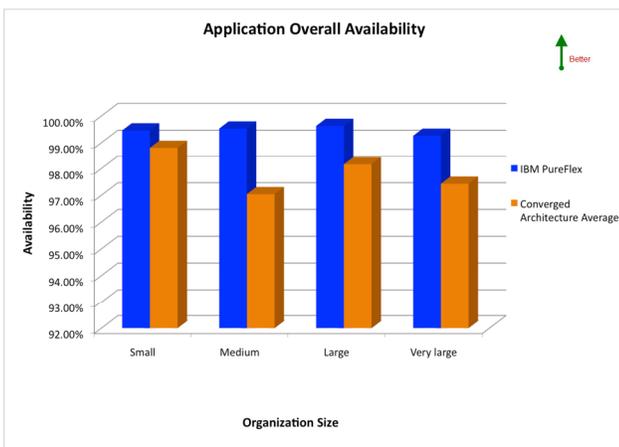
Risk is composed of many factors including the stability and reliability of the platform, as well as the chances of platform failure. IT stability and reliability metrics include all planned and unplanned downtime. The dependability of the implementation is a combination of the individual reliability of each component (i.e., network, hardware, OS, DBMS, etc.)

Availability can also be viewed as downtime. In the chart, the aggregate outages have been expressed as downtime. Since each of outages takes valuable access time away from the corporate resources, the correlation of outage and cost is very close. All forms of unavailability are included in this percentage-of-time metric.

The IBM PureFlex platforms report less than 20% of the total planned and unplanned downtime of the other study platforms. It indicates how the PureFlex infrastructure contributes to the stability and reliability of an organization's Oracle implementation, due to the combination of high performance and native resilience.

The three most cited sources of the high availability from customers are:

1. Fewer system crashes
2. Limited need to reboot the full platform
3. Fewer system patches and maintenance updates required
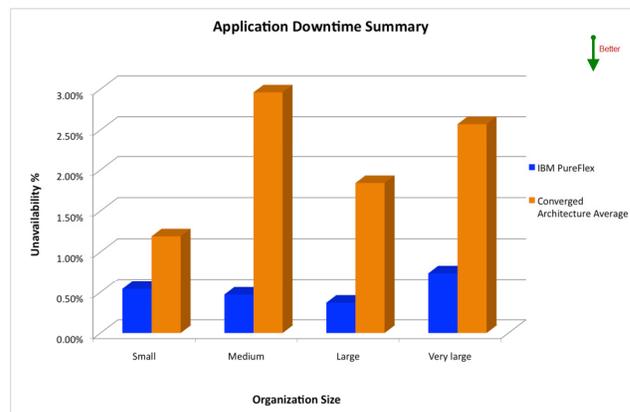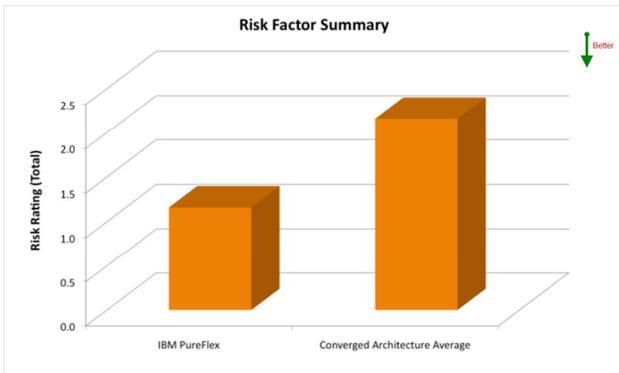
Examined as an actuarial metric, SIL considers risk to be comprised of three components that are added to form the overall risk factor:

- Percentage chance of component failure
- Percentage chance of budget or timeframe overrun
- Potential exposure, expressed as a percentage amount of overall budget or timeframe overrun

The risk mitigation when the general Oracle operations experience is compared to PureFlex deployments shows less than 34.38% of the risk. Much of this lower risk can be attributed to the high resiliency of the PureFlex deployment and increased efficiency of resource allocation within the platform, which lowers the risk of component failure.

Agility

Agility is defined as the average number of calendar days from the start of an initiative to the start of full production operations for a project. All of the contributory factors, such as staffing and reliability, etc., radically affect the speed in which a company can move a business concept from inception to market. Measurements were collected to track the amount of time that the systems took to move from initial conception to production. The reported increase appeared to be as much as 44.41% faster for the PureFlex deployment compared to the overall study group. This translates into a faster time-to-market for business initiatives. The most frequently cited reasons from customers in the study are:

1. Ability to easily shift resources to accommodate new implementations
2. Speed of movement from non-production to production environments
3. Lack of system failures during deployment
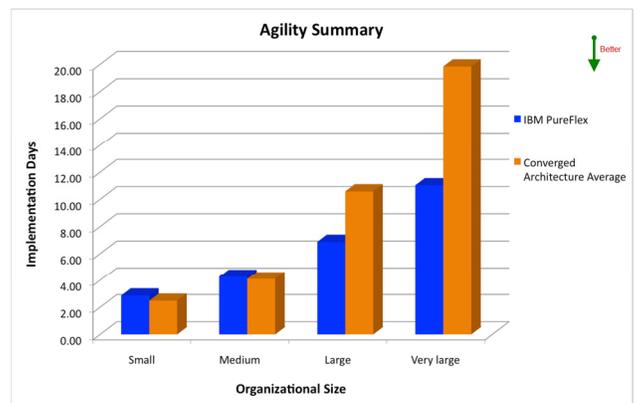
2.2. Conclusion

The Solitaire Interglobal Ltd. analysis of Oracle application and database deployments shows that there is a substantial advantage to incorporating the IBM PureFlex architecture within an organization's IT infrastructure, based on a broad set of business and performance metrics. These include the high customer satisfaction ratings from both executive and operational management, as well as significantly lower risk rating than other converged infrastructure offerings. These advantages increase the effectiveness of any Oracle application or database deployment and translate to real-world positive results experienced and reported by the businesses in this study.

The economic benefits of selecting IBM PureFlex platforms as an Oracle deployment choice are also apparent in overall expense, both from a true cost of acquisition and from an operations perspective. The reduced complexity that is produced with the PureFlex tools help to minimize the resources needed to perform necessary tasks, both from a system side and from the demand for personnel time. This produces efficient application deployment and cost-effective expenditures, while displaying a risk profile that is substantially lower than the other available converged infrastructures.

Overall, critical effects on staffing, security, cost and satisfaction, as well as impressive reliability makes the IBM PureFlex converged architecture a strong candidate for an organization's Oracle database, E-Business Suite or other Oracle application deployment choice.

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