MANAGEMENT BRIEF

Cost/Benefit Case for IBM Informix

Compared to Microsoft SQL Server
for Midsize Organizations

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EXECUTIVE SUMMARY

Why Informix?

Informix is one of the world's most widely used relational databases. With over 200,000 customers, it has developed a strong following among users that range from the world's largest corporations to startups and small businesses. Its growth has outpaced the relational database market as a whole. It enjoys exceptional levels of customer satisfaction and loyalty.

One might reasonably ask why. Part of the answer is that, from its inception in the early 1980s to the latest version 11.5, Informix has incorporated design concepts that are significantly different from other relational platforms. These translate into extremely low administrative overhead, extremely high levels of performance and availability, and distinctive capabilities in data replication, scalability and other areas.

Another part of the answer is that, since IBM acquired Informix in 2001, the company has continued to invest in this platform. A steady stream of enhancements have maintained technological currency, provided a wide range of new features and functions, implemented the latest industry standards and made Informix an industry leader in embeddability; i.e., the ability to integrate with and optimize for third-party solutions.

In addition, Informix has developed a very large "ecosystem." There are at least 4,500 businesses worldwide that resell, support and/or offer tools and solutions for Informix environments. There is also an active peer community – the International Informix Users Group (IIUG), for example, has more than 25,000 members – that provides extensive sources of information, advice and assistance.

The final part of the answer is that Informix costs of ownership are lower – by wide margins – than those of competitive platforms. These cost advantages are the focus of this report.

Cost Picture

The report is built around two sets of research data. First, results from a survey of 62 midsize organizations employing Informix in North America and Europe deal with DBA staffing levels, and confirm that these are significantly lower than those for competitive equivalents. Other advantages of Informix use are also documented.

Second, comparisons of configurations, software and DBA staffing among these organizations, and among equivalent Microsoft SQL Server users, provide important insights. Three-year costs of ownership for use of Informix are significantly lower than for SQL Server. In nine representative installations with between 8 and 1,000 users, three-year Informix costs average 33 percent less than those for SQL Server.

Figure 1 summarizes these results.

Figure 1
Three-year Costs for Use of Informix and SQL Server: Averages for All Installations
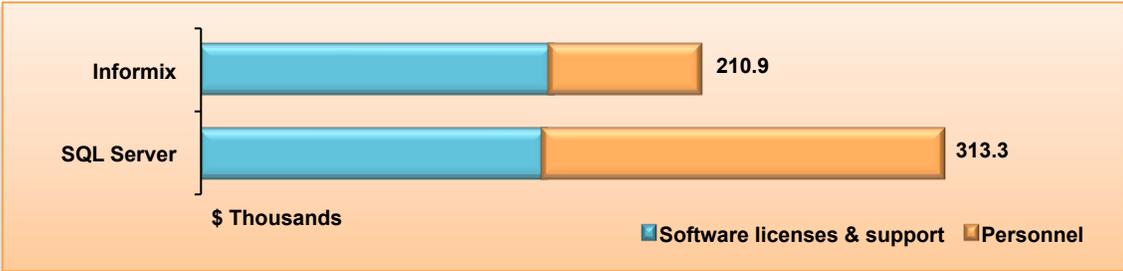
Although software license and support costs are similar for both platforms, Informix personnel costs average 63 percent less than those for use of SQL Server.

Comparisons are for use of Informix 11.5 Choice, Growth and Ultimate Editions and SQL Server 2008 R2 equivalents – Workgroup, Standard, and Enterprise and Datacenter Editions.

For purposes of comparison, Informix as well as SQL Server databases are deployed on Windows Server 2008 R2 on standard Intel-based servers. Costs of server hardware, systems software and system administration are not included. These would be generally similar for both platforms.

Although the general picture was consistent, there were variations in costs between different database versions, which are summarized in figure 2, and individual installations, which are documented in the Detailed Data section.

Figure 2
Three-year Costs for Use of Informix and SQL Server: Averages by Brand
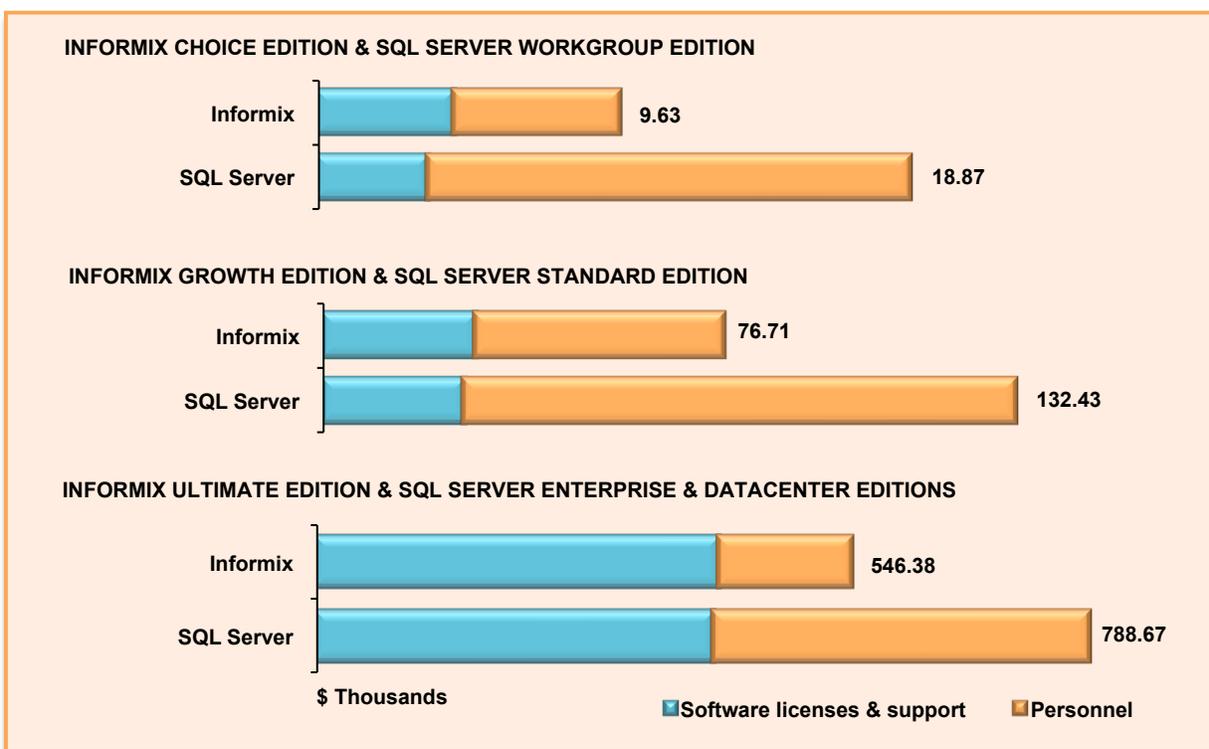
Comparing the entry-level versions of each platform, costs for use of Informix Choice Edition average approximately half of those for SQL Server Workgroup Edition. Comparing Informix Growth Edition and SQL Server Standard Edition for installations with between 65 and 200 users, costs for the Informix solution average 42 percent less.

For larger installations employing Informix Ultimate Edition, costs average 31 percent less than SQL Server Enterprise Edition or Datacenter Edition.

The basis of these calculations, including descriptions of installations and methodology, is outlined in the Detailed Data section. Cost breakdowns for all installations and database versions may also be found in this section.

Challenges and Solutions

The challenges that midsize businesses face today are considerable. It may be vital to contain costs. But businesses must also use information technology to realize more proactive goals – gaining competitive advantage, increasing organizational efficiency and responsiveness, building new relationships with customers, and realizing other bottom-line benefits that vary between industries and geographies.

The core appeal of Informix is that it enables organizations to achieve such goals while maintaining an essentially simple IT environment.

Informix architecture is designed for high levels of availability and incremental scalability. It incorporates unique, integrated virtualization features and performs well handling transactional as well as business intelligence (BI) workloads. It offers failover clustering and replication as effective as, if not more effective than higher-priced competitive platforms.

Informix runs not only on Windows servers, but also on Linux, MacOS and the industry's principal UNIX operating systems. Organizations thus have a variety of platform options. For more demanding applications and workloads, use of IBM's Power servers and the AIX operating system may deliver significantly higher levels of performance and availability than may be realized with x86 servers.

The impact of Informix database extension technology has also been significant. Support for image, video and multimedia content, as well as spatial, geodetic, time series and other advanced data types have made Informix a competitor in a wide range of emerging markets. New application opportunities have become available to users in established Informix verticals.

IBM has also focused, to a greater extent than any competitive vendor, on embeddability as a central parameter of Informix system design and product strategy. Close integration between applications and databases further reduces costs and improves quality of service.

A further issue should be raised. Midsize businesses have increasingly deployed advanced tools and technologies that were once the prerogative of Fortune 500 companies. This trend will clearly accelerate.

Technological sophistication, however, can all too easily translate into excessive complexity. New integration challenges may be posed. Management overhead may escalate. Maintenance of performance, availability and security can be become increasingly problematic.

The effects of complexity have undermined the IT strategies of many large organizations. In midsize businesses, with fewer staff, funds and technical skills, the effects may be a great deal more serious.

It is better, by far, to control this process at an early stage. Informix offers the opportunity to do so.

USER VIEW

User Survey

The 62 organizations surveyed for this report had all deployed Informix-based solutions on Windows x86 or, in a few cases, Intel Itanium-based servers, and had at least one year of experience operating these. Users reported between 7 and 6,000 employees, and sales of between $1 million and $1.6 billion.

The survey population included manufacturing (19 percent), telecommunications and retail (10 percent each), financial services, health care and transportation (8 percent each), distribution, government, media and IT services (6 percent each), nonprofit and real estate (3 percent each), along with agribusiness, engineering and construction, and gaming organizations located in North America and Europe.

Questions covered basic parameters such as organization and installation sizes, databases and servers employed, and full time equivalent (FTE) staffing. Organizations also reported what they saw as the advantages of employing Informix, and, where appropriate, their experiences with other databases.

This section presents survey results. The following section addresses Informix technical capabilities.

Informix Advantages

Ease of Administration

Overall, 73 percent of organizations responded that a primary advantage of employing Informix was that databases could be easily administered, which was reflected in low levels of DBA activity and staffing. This was, as figure 3 shows, the most commonly reported advantage.

Figure 3
Advantages of Employing Informix Databases: User Responses

Ease of administration	73%
Availability/reliability	66%
Third-party solution	44%
Third-party/IBM support	40%
Replication capabilities	29%
Performance strengths	24%
Scalability/support growth	16%
Other	39%

**Source: International Technology Group
Survey of 62 small & midsize Informix users**

Informix was described in such terms as "very simple…easy to administer…very easy to administer… very easy (for IT staff) to work with...minimal administration…hardly any administration…almost no DBA time…virtually no DBA activity…virtually no tuning…very little monitoring…near-zero maintenance…runs unattended most of the time."

Among participants in the survey, 18 percent reported that they had no Informix DBA (although probably in at least some of these cases DBA tasks were undertaken on a part-time basis by other IT staff), while 32 percent reported one or less than one FTE DBA, and 27 percent reported between one and four FTE DBAs. For the remainder, DBA staffing was not known.

The ability to operate without a DBA, or with DBA tasks undertaken by another IT specialist or specialists was particularly valued by comparatively small organizations. These included manufacturing companies with fewer than 20 employees, medical and real estate practices and non-profit organizations.

Among organizations of all sizes, it was reported that very little time was spent on routine database maintenance tasks, and that little monitoring was required. Users cited such Informix features as the OpenAdmin Tool and DB Scheduler. Administration tools were described as "excellent… easy to use…very easy to use" and equivalents.

Several organizations that employed Informix BI tools reported no DBAs or less than one FTE DBA. One organization reported that a single FTE DBA handled support for the company's Informix-based enterprise resource planning (ERP) system and data warehouse.

A number of organizations used other databases such as Oracle and SQL Server alongside Informix, or had used these in the past. There was general agreement that DBA overhead was significantly lower for Informix. One user reported that a full time DBA had been replaced by a less than 0.5 FTE Informix equivalent. In other cases, numbers of FTE DBAs had fallen from 3 to 1, and 4 to 1.5.

Another organization had evaluated Oracle and Informix before deciding to deploy the latter. The Informix database required a 0.5 FTE DBA. Management had estimated that use of Oracle would have required two full time DBAs.

Overall, DBA staffing for Informix was reported to be between two and four times less than for other databases. This is consistent with most industry estimates.

Some organizations also cited the comparative ease with which non-DBAs could be trained to handle Informix administration tasks. This was seen as particularly useful among organizations with few IT staff, and one or less than one FTE DBA. A second individual could be trained to cover the primary DBA in case the latter was unavailable.

Availability/Reliability

Availability/reliability ran a close second in listing Informix advantages. Although different terms were used to characterize this strength, the ability of Informix to operate for long periods without downtime or disruptions was widely cited.

Informix was variously described as "reliable…very reliable…highly reliable…extremely reliable." Others referred to "outstanding availability…extremely high availability…exceptionally high availability…100% availability" and equivalents. One user responded that "(we) needed zero downtime, and got it."

Unplanned outages were sufficiently rare that many respondents could not recall any. It was reported that there had been no outages for the "last five years…last six years…last 10 years." One user reported no outages since Informix was first deployed in 1992.

Only four organizations reported an unplanned outage due to Informix problems within the last 12 months, with downtime of from one to eight hours. Two employed relatively old Informix versions.

Several organizations reported that they had experienced outages due to other causes, such as hardware failures, power outages and network disruptions. Informix databases were rapidly recovered without data loss or corruption. Organizations had often experienced neither planned nor unplanned outages over long periods, except for version upgrades and major application changes.

Responses citing Informix availability or reliability overlapped with those for Informix replication, failover and recovery strengths. These are discussed below.

Third-party Solutions and Suppliers

For 44 percent of the organizations, one of the advantages of employing Informix was that it supported a specific industry- or application-specific solution offered by an independent software vendor (ISV), turnkey systems provider or other third-party.

Such solutions variously included ERP, customer relationship management (CRM), distribution and logistics management, financial and human resources applications, along with industry-specific offerings.

The level of industry specialization was often striking. For example, one user had implemented a core banking solution tailored to the needs of community financial institutions operating in rural areas. Another had deployed a practice and revenue cycle management solution designed for small primary case offices. There were many such examples.

Many of these organizations, along with others employing customized or internally developed systems, also cited advice and assistance provided by third parties as a key advantage of employing Informix. Seven organizations cited IBM Informix support. Responses tended to overlap.

Replication, Failover and Recovery

Twenty-nine percent of the organizations cited Informix replication capabilities, including tools supporting real time failover and recovery, as advantages of employing this platform.

Responses covered multiple Informix offerings, including High Availability Data Replication (HDR), Remote Standalone Secondary (RSS) server and Shared Disk Secondary (SDS) server, which complement the Informix Enterprise Replication (ER) technology. ER is a flexible, scalable SQL-based form of data replication capable of handling large data volumes efficiently.

In high availability configurations, a primary HDR acts as the focal point. It may be coupled with a second HDR node in a classical local failover cluster; with SDS nodes to enable servers to share a single disk array; or with one or more RSS node for remote replication and failover.

Primary to HDR Secondary and Primary to SDS Secondary links employ synchronous replication, while Primary to RSS Secondary communications employ a complementary asynchronous method.

As a general principle, synchronous replication minimizes risks of data loss during failover, but generates higher network overhead and is subject to distance constraints. It is typically employed for failover within a single site, or between sites located within 30 kilometers of each other.

Asynchronous replication requires less network bandwidth, and may be employed over longer distances. However, more data loss may occur during the failover process.

These Informix offerings allow for a great deal of configuration flexibility to deal with varying system criticality, performance and cost requirements. Figure 4 shows some options.

Figure 4
Informix Replication, Failover and Recovery Options
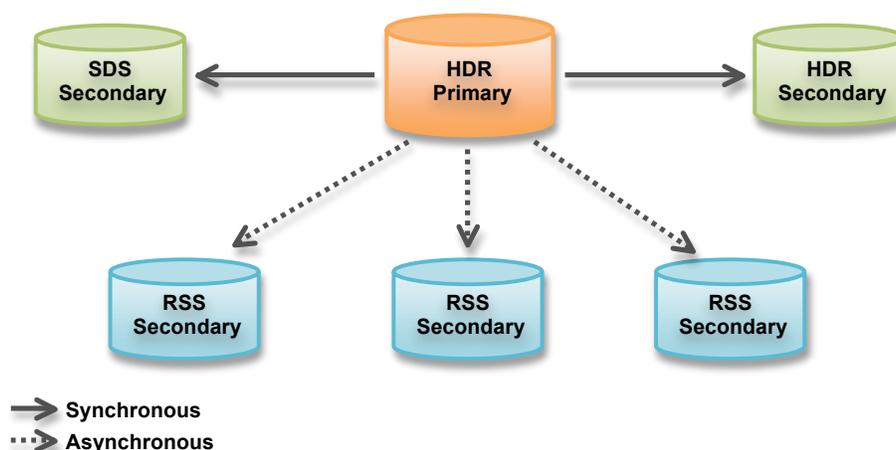
These offerings were valued by organizations of all sizes. One user noted that Informix HDR provided an effective clustered high availability solution "at a fraction of the price" of high-end vendor solutions.

RSS also drew favorable comments. Several organizations reported that RSS provided a degree of disaster recovery coverage that was close to HDR and other synchronous methods, but a great deal less expensive in terms of bandwidth. Potential data loss in the event of an outage was also minimal – typically no more than a few seconds.

Use of RSS was also said to be more cost-effective than "active/passive" clusters that required dedicated standby servers. Organizations could achieve the same level of uptime without idle server resources.

Another user had found that it was easier to replicate data to an alternate site using RSS than to perform standard backups. The process was also said to be more reliable. While backups occasionally failed, no such problems were experienced with RSS. Recovery of data in the event of a failure was also said to be a simpler and faster process.

ER technology and RSS were used by organizations to update remote databases at remote sites supporting local business units, facilities, sales offices and the like. This is a "classical" Informix strength that is often leveraged by corporate users.

Some relatively small organizations also employed this approach. For example, one manufacturing company with around 50 employees, and another with fewer than 20 employees employed ER to update Informix databases maintained at multiple international locations.

The comparatively low cost and simplicity of Informix replication also merited comment. One organization that needed to support "24x7" business operations, for example, had reviewed Informix, Oracle and SQL Server.

It was noted that Informix provided sophisticated failover and recovery features as standard, and that these could be easily implemented by an Informix partner. Use of clustering for the other platforms would have required additional, separately priced tools and a significant amount of custom consulting assistance.

These advantages were highlighted by a recent startup that offered specialized hosting services using Informix. It was possible to deliver high levels of uptime with limited upfront investment. The company might not be in business if it had chosen to employ a different database.

Generally similar capabilities are offered by Microsoft for SQL Server databases, although there are a number of important functional differences. Informix, for example, supports active-active clustering; i.e., a primary system may fail over to a standby server that is running other applications. SQL Server employs active-passive clustering, which means that failover occurs to an idle server.

SQL Server Database Mirroring, which is normally employed for applications requiring the highest levels of database availability and recoverability, requires use of primary, failover and "witness" instances deployed on separate physical servers. The witness instance is required to ensure integrity of data during the failover and recovery process.

In comparison, Informix requires only a primary instance and one or more failover instances. In these and in other areas, Microsoft replication, failover and recovery solutions tend to be more complex, and to require greater start-up time and administrative overhead than Informix equivalents.

A key difference is that, in a SQL Server environment, advanced capabilities are added as software overlays to databases. In an Informix environment, they form part of core database structures.

Performance

Twenty-four percent of the organizations cited performance as an Informix advantage. Strong performance was reported not only for low-end, comparatively inexpensive installs by IT services companies, but also others supporting larger-scale workloads.

Corporate users tend to value Informix for high-volume transaction processing, and IBM marketing tends to emphasize such workloads. Midsize organizations that contributed to this report, however, cited Informix performance strengths for a variety of applications.

These included ERP, query-intensive, image- and video-intensive and Internet workloads, as well as systems in banking, distribution, health care, logistics, manufacturing, retailing, communications and other businesses. Several organizations also cited Informix data warehouse performance.

Informix optimistic concurrency was mentioned as contributing to performance. This capability allows users to read data that would otherwise be inaccessible because it was being updated and modified. Optimistic concurrency – which, as the name suggests, operates on the assumption that most accesses will not conflict with each other – has proved to be more efficient than conventional locking mechanisms.

Scalability and Growth

Informix scalability – meaning the ability to support growth in workloads, database sizes and user populations – was cited by 16 percent of the organizations. These had typically started with comparatively small Informix-based systems and had been able to handle growth in a simple and cost-effective manner.

Among the organizations that cited scalability were expanding manufacturers, distributors and transportation companies, Internet gaming and information services suppliers, telecommunications operators and Internet Service Providers (ISPs).

Other Advantages

Other reported advantages included ease of Informix deployment (cited by 11 percent of the organizations that had recently deployed Informix-based solutions) and Linux support (cited by 10 percent of the organizations that did not wish to employ Microsoft Windows and SQL Server), along with general stability and robustness, data warehousing, and support for spatial, time series and video data.

TECHNOLOGY VIEW

State of Informix

The Informix database was originally introduced in 1981 and was acquired by IBM in 2001.

At the time of the acquisition, there were around 100,000 Informix customers, ranging from Fortune 100 retailers and telecommunications companies to small and midsize businesses worldwide. Currently, there are more than 200,000 Informix customers.

According to IBM, the company's Informix business experienced double-digit annual growth between 2006 and 2008, reaching 30 percent during 2008. Economic conditions caused a slowdown during 2009 and 2010 (all of the major database platforms were affected by this trend), but numbers of Informix installs, customers, ISVs and resellers have all continued to increase.

Informix use has expanded rapidly in developing markets such as Eastern Europe, the former Soviet Union, China and South East Asia, India and Latin America. The database platform has demonstrated appeal to customers of all sizes in a wide range of industries, and has drawn widespread support from suppliers of industry- and application-specific solutions in these geographies.

In addition to conventional business verticals, Informix has emerged as a major player in such areas as online gaming, Internet services, mapping and geographic information systems (GIS) and digital content applications. To a great extent, its popularity in these areas has been driven by Informix database extensions described later in this section.

Informix has been widely deployed on UNIX platforms, including Hewlett-Packard's Integrity servers with the HP-UX operating system, IBM Power servers with AIX and Sun Solaris models; on x86 Windows and Linux platforms (it is supported for Red Hat Enterprise Linux, Novell SUSE Linux Enterprise and others); and on MacOS X servers.

Linux databases may also run as guests under the industry's principal hypervisors. Informix is supported for use with HP Integrity Virtual Server Environment (VSE), IBM PowerVM and Workload Partitions (WPARs) for Power servers and Solaris Zones for Sun servers; along with leading x86 virtualization enablers such as VMware, Microsoft Hyper-V for Windows servers and kvm for Linux servers.

Technology Evolution

Many of the strengths of Informix are inherent to the original system design, which differed from platforms such as Oracle, SQL Server, Sybase and MySQL in important respects.

Streamlined, lightweight data structures resulted in high levels of throughput and low processor overhead. Simplified, automated administration means that few DBAs were required even for complex, variable workloads. Informix has also rated highly in availability surveys since the 1990s. High levels of scalability were apparent in the Informix Dynamic Scalable Architecture (DSA), introduced in 1994.

One of the distinctive characteristics of DSA is that it is built upon software-based virtual processors. These are dedicated to handling specific tasks such as SQL execution, threading, management of I/O, memory and communications, along with administration, auditing, encryption and decryption processes, support for Java Virtual Machines (JVMs) and user-defined functions.

This approach, which is a major focus of latest-generation microprocessor and operating system designs, has been implemented in Informix for close to 20 years. It enables high levels of configuration flexibility, materially improves the efficiency with which complex, diverse workloads are executed, and contributes to performance, scalability and ease of administration.

Under IBM management, Informix databases experienced a steady stream of upgrades and enhancements. The original Informix Version 9, introduced in 1996, was followed by Version 10 in 2005, Version 11 in 2007 and Version 11.5 in 2008.

Improvements have been realized in a number of areas. These include:

- *Ease of administration*. High levels of automation in the original Informix design have been advanced by application of IBM autonomic technologies for self-tuning, self-configuration and other tasks.

  Autonomic computing – meaning the application of artificial intelligence technologies to IT administration tasks – has been a major IBM development focus since the 1990s. The company is the clear industry leader in this area.

  In Version 11, the company added the OpenAdmin Tool (OAT), which provides a streamlined, browser-based administrator interface with numerous automation functions. A key benefit is that administrators may monitor and manage multiple Informix instances through the same interface. ER processes and target systems may be administered in this manner.

- *High availability and replication*. These capabilities have continued to evolve. In Version 11, Multiple-instance Active Cluster 11 for High Availability (MACH-11) technology enables asynchronous mirroring of Informix databases to any number of RSS nodes.

  This capability has proved particularly attractive to large global users – asynchronous replication may operate at great distances – but has also been adopted by some midsize businesses with geographically dispersed operations.

- *Data compression*. In Version 11.5, IBM introduced table-based compression through a separately charged Storage Optimization Feature for Ultimate Edition.

  Data compression can yield a number of benefits, including reduced needs for disk and tape storage capability, and faster I/O, replication and backup operations. Typically, however, processor overhead is increased.

  The Informix capability, according to IBM, can reduce disk storage capacity by up 80 percent and increase I/O performance by up to 20 percent. User experiences suggest that most organizations can expect capacity reductions of 50 percent or more, while performance improvements will vary according to database and workload characteristics. Processor overhead appears to be minimal – typically no more than a few percent.

Development tools have also been progressively enhanced. Informix currently supports Informix fourth-generation language (4GL), along with C/C++, C#, VB.NET, Java, PHP, Ruby-on-Rails and others.

Established architectural strengths as well as more recent enhancements have contributed to Informix capabilities in three other key areas – embeddability, data warehousing and extensibility – that are described below.

Further enhancements in these and other areas are expected in the next major version of Informix, commonly referred to as "Panther." It is expected that this version will be available during 2010.

Embeddability

Embeddability, in the IBM use of this term, refers to integration between Informix databases and third-party solutions built around them.

All major databases may be bundled into third-party solutions. However, the level of integration that may be realized with Informix is significantly greater than the industry norm.

Like most Informix strengths, embeddability is reflected in underlying architecture. DSA's virtualization-based configuration flexibility facilitates customization, and all major components of the Informix environment may be closely adapted for specific applications. This includes monitoring, task scheduling, tuning, optimization, availability management and other tools.

A key aspect of Informix customization is that it extends to automation features. For example, self-tuning may be implemented in a manner that recognizes application-specific database characteristics and workloads. These may vary widely between, say, an ERP or patient care system, or between an online query and an Internet gaming workload.

The embeddability strengths of Informix contribute in no small measure to its popularity among third-party solution providers and their customers. Integration and updates are simpler, and less expensive tasks than for competitive databases. Support requirements are also reduced – database skills merge into application skills, enabling single individuals to deal with customer issues.

A further benefit of embeddability is that it makes installation simpler. Applications and the databases that support them may be deployed in an integrated manner, reducing the amount of custom configuration, tuning and testing required. Informix offers a "silent install" option that allows for the entire solution set to be installed and started up with minimal intervention by administrators.

The fact that Informix is supported for multiple platforms has also contributed to its popularity among solution providers, who can market their offerings to a broader range of customers than would otherwise be the case. SQL Server, in contrast, is supported only on Windows servers.

Data Warehousing

Data warehousing has been a major feature of the Informix landscape since the 1980s. In practice, the term "data warehousing" is commonly employed within the Informix community to refer to a variety of BI applications.

For decades, large users have employed Informix for organizational data warehouses handling high-volume and/or complex queries for analytical applications. The scalability enabled by DSA, and distinctive capabilities for parallel operations, large table scanning, mixed query workload management, performance optimization and other functions have contributed to Informix popularity in this role.

A second major area of activity has been among smaller organizations that employ Informix as their main platform for core business systems. Many have chosen to add Informix-based query and reporting applications, or have implemented more sophisticated BI tools. One commonly heard estimate is that 40 percent of users employ Informix databases for such applications.

IBM has responded to demand from this group with the Informix Warehouse Feature. Designed to assist users in developing, deploying and managing BI applications, it includes Eclipse-based development (Design Studio); data modeling and manipulation (SQL Warehousing Tool); and monitoring and management (SQW Administration Console) tools.

Database Extensions

Informix database extensions (called DataBlades) allow databases to be configured and optimized for specialized capabilities. Although competitive vendors often support such capabilities through add-ons, the Informix approach is distinctive. Flexible Informix structures allow extensions to form integral parts of underlying databases.

This approach allows for efficient use of system resources, resulting in higher performance. Database extensions also leverage Informix strengths in ease of administration, availability and other areas.

The range of Informix offerings has been progressively expanded since the 1990s, and now includes those shown in figure 5.

Figure 5
Major Informix Database Extension Offerings

EXTENSION	DESCRIPTION
Spatial	Manages geospatial information using a "flat map" (2D) model. Typically used for small-scale local applications. Accessible via standard SQL queries or GIS.
Geodetic	Manages geospatial information referenced by latitude-longitude coordinates (i.e., allows for curvature of the earth). Typically used for regional or global applications exploiting satellite imagery.
TimeSeries	Manages data organized by date/time or date/time ranges. Implements specialized that accelerate analysis of large volumes of data. Applications include trading analysis, energy consumption tracking & fraud detection.

A variety of other extensions are available from IBM and third party developers. It is comparatively easy to customize extensions, and to develop new ones. In some cases, individual end users have done so.

Certain Informix extensions have seen widespread adoption as the applications they support have become popular among users.

For example, spatial and geodetic capabilities have enabled third-party solution providers to develop new markets among local, regional and national government users for GIS and mapping systems. Applications have also developed in financial services, retail, telecommunications, transportation and other industries.

Support for digital multimedia has also seen the emergence of new solution providers and applications in such areas as digital video and entertainment (online gaming is now one of the largest Informix vertical market segments). TimeSeries capabilities have enabled applications in financial trading and online energy metering. Many other such examples might be cited.

Database extensions have become a major Informix growth area, and it can be expected that this trend will continue. A key driver of demand has been that capabilities for exploitation of advanced data have been made available to small organizations that could not afford high-end solutions.

DETAILED DATA

Basis of Calculations

Installations

The cost comparisons presented in this report are based on the installations summarized in figure 6.

Figure 6
Installations and Configurations

INFORMIX CHOICE EDITION & SQL SERVER WORKGROUP EDITION			
Organization	**Accounting**	**Non-Profit**	**Medical Practice**
Business profile	CPA firm	Regional trade association	Primary care practice
Applications	Practice management system	Membership management, administration & accounting	Practice management system
Users	8	15	25
Server	2-socket	2-socket	2-socket
Clusters	N/A (standard backup)	N/A (standard backup)	Informix HDR/RSS SQL Server Cluster
INFORMIX GROWTH EDITION & SQL SERVER STANDARD EDITION			
Organization	**Distribution**	**Industrial Manufacturing**	**Retail**
Business profile	Distribution center for regional grocery chain with: $1.5 billion sales 100+ stores 10,000 employees	Commercial lighting fixtures manufacturer – single facility $35 million sales 300 employees	Grocery & sundries retailer $600 million sales 4,000 employees 65 stores
Applications	Warehouse management system	ERP & CRM systems	Distribution management & marketing systems
Users	65	125	200
Server	2-socket	4-socket	4-socket
Clusters	Informix HDR/RSS SQL Server Cluster	Informix HDR/SDS SQL Server Cluster	Informix HDR/RSS SQL Server Cluster
INFORMIX ULTIMATE EDITION & SQL SERVER ENTERPRISE & DATACENTER EDITIONS			
Organization	**Bank**	**Media**	**Telecommunications**
Business profile	Community bank $5+ billion assets 1,000 employees 50 branches 750,000 customers	Cable TV operator offering digital multimedia services Over 1 million customers Over $1 billion sales 5,000 employees	Diversified telecommunications & Internet services company $1.2 billion sales 200,000+ broadband customers 3,000 employees – 4 offices
Applications	Core banking system	Digital multimedia database supporting interactive programming	Billing, customer care, network management, sales & order processing systems, various
Users	300	N/A	1,000+
Server	4-socket	8-socket	16-socket
Database versions	Informix Ultimate Edition SQL Server Enterprise Edition	Informix Ultimate Edition SQL Server Enterprise Edition	Informix Ultimate Edition SQL Server Datacenter Edition
Clusters	Informix HDR/RSS SQL Server Cluster	Informix HDR/RSS SQL Server Cluster	Informix HDR/RSS SQL Server Cluster

Installations were constructed using data supplied by Informix user organizations surveyed for this report; and by 23 organizations of the approximately the same size, in the same industries, with generally similar business profiles, applications and user populations, employing SQL Server.

Informix and SQL Server versions and clustering methods are as shown. Server configurations are based on Intel Xeon- and (for the media company) Itanium-based servers with Windows Server 2008 R2.

Cost Calculations

Costs were calculated as follows:

- **Software costs** include license acquisition and three-year update and support subscriptions. License costs were calculated based on discounted vendor list prices. The same discount assumptions were applied to Informix and SQL Server offerings.

  Both IBM and Microsoft offer multiple pricing options. For Informix, these include pricing based on numbers of sockets, users, concurrent sessions and Processor Value Units (PVU), which vary by configuration sizes, numbers of cores and types of processors employed. Microsoft offers two options: (1) per processor pricing (a processor, in Microsoft practice, equates to a socket); and (2) pricing based on a per server charge and Client Access Licenses (CALs) for individual users.

  Costs were calculated based on the lowest-cost pricing option for each database and installation.

  Support costs were calculated as 20 percent of Informix and 25 percent of SQL Server discounted license costs per year, multiplied by three.

- **Personnel costs** for the three installations employing Informix Choice Edition and SQL Server Workgroup were calculated on the assumption that consultants performed DBA tasks. Rates of $45 per hour for SQL Server and $50 per hour for Informix consultants were employed.

  This approach is common among small businesses. Alternatively, a full time or FTE IT specialist may handle database administration along with other tasks. Using either method, it could be expected that the amount of time required for, and the costs of Informix database administration would be significantly lower than for SQL Server.

  For the other six installations, costs were calculated for numbers of full time or FTE DBAs. Calculations were based on annual average salaries of $91,582 and $86,201 for Informix and SQL Server DBAs respectively. Salaries were increased by 48.3 percent to allow for benefits, bonuses and related items. Overall costs were calculated for a three-year period.

All cost values were for the United States.

Cost Breakdowns

Detailed breakdowns are presented in figure 7.

Figure 7
Cost Breakdowns

INFORMIX CHOICE EDITION & SQL SERVER WORKGROUP EDITION			
Organization	**Accounting**	**Non-Profit**	**Medical Practice**
INFORMIX			
Software & support	2,165	4,060	6,766
Personnel	2,400	7,500	6,000
Total ($)	**4,565**	**11,560**	**12,766**
SQL SERVER			
Software & support	1,746	3,287	5,489
Personnel	7,200	24,480	14,400
Total ($)	**8,946**	**27,767**	**19,889**
INFORMIX GROWTH EDITION & SQL SERVER STANDARD EDITION			
Organization	**Distribution**	**Industrial Manufacturing**	**Retail**
INFORMIX			
Software & support	15,912	30,600	41,004
Personnel	40,745	40,745	61,117
Total ($)	**56,657**	**71,345**	**102,121**
SQL SERVER			
Software & support	15,170	28,085	37,648
Personnel	76,702	105,465	134,228
Total ($)	**91,872**	**133,550**	**171,876**
INFORMIX ULTIMATE EDITION & SQL SERVER ENTERPRISE & DATACENTER EDITIONS			
Organization	**Bank**	**Media**	**Telecommunications**
INFORMIX			
Software & support	198,720	370,560	662,400
Personnel	81,490	142,607	183,352
Total ($)	**280,210**	**513,167**	**845,752**
SQL SERVER			
Software & support	60,682	230,958	923,832
Personnel	230,105	441,034	479,385
Total ($)	**290,787**	**671,992**	**1,403,217**

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