Clarity: The Key to Successful IT Infrastructure Management

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THE IT DEPARTMENT IN AN E-BUSINESS WORLD

Companies depend on the quality and availability of information to thrive and succeed in today's fast paced business environment. At all levels, employees need to be aware of the key business facts related to their roles in the company, and how these facts deviate from the planned or forecasted values.

Enterprise applications enable companies to run their daily operations and provide the information infrastructure required by business executives to view key business facts on a daily basis. Managers on any organizational level rely on the information provided by the applications to manage and optimize business operations. Huge amounts of operational data – frequently in the terabytes range – are captured, stored in corporate databases, and processed to support the company's information needs. The data center must ensure that this data will be always accessible when needed and that the applications will run with the availability and turn-around time required by the business users.

The irreversible trend of integrating the Internet into the enterprise core processes, known as e-business, has made the availability requirement even more stringent. Employees, customers and business partners are all part of the e-business environment and benefit from the facilities provided by the new IT infrastructure. In e-business, organizations need to communicate more efficiently, create tighter bonds with customers and make it possible to do business 24 hours a day, 7 days a week.

As this shift has occurred, user and customer expectations have risen dramatically. Internal users and external customers now know immediately if the applications they use are available and how they perform. In short, IT infrastructures, which were once only exposed to internal audiences, are now on display for the world. There is an intense pressure to keep these systems available and reliable while performing at the highest possible levels.

THE IT CLARITY VALUE CHAIN: DATA, INFORMATION AND KNOWLEDGE

In the midst of an unrelenting number of changes, businesses are continually pressuring their IT organizations to provide higher levels of service at reduced costs. The need for balancing these conflicting objectives is most evident within the data center. IT organizations must manage and balance this value equation of high complexity and change, meeting service levels for a variety of customers and a reduction in operating costs.

Meeting these challenges requires delivering the maximum value to customers and maintaining a new level of precision in the information and knowledge needed for managing the data center. All levels of the IT staff need a clear picture of the current status, and of what needs to be done to deliver continuous service excellence.

Data are numbers or literals, devoid of meaning. What does 104ºF mean? Is it important? It is hard to tell; that depends on what is exhibiting that temperature and under what circumstances. The connotations of 104ºF are totally different if it refers to the temperature of a human, a room or a device, and in the latter case, which device, and where it is measured.

Information is data collected and organized to convey a message. It has been defined as "data endowed with relevance and purpose". If we say that "the temperature of the operator's room in our NY data center is 104ºF" we have a better understanding of the situation. The relevance of the information is related to how unexpected that information is. For instance, the relevance of the information about the room temperature is very different in August than in January.

Often, one piece of information is not enough to act upon. A map that shows if the room is internal or external, along with a reading of the settings of the air conditioner may define whether the employee needs to call the Fire Department or just reset the device. The grouping of several pieces of information in a context provides us with a clear picture of the situation that provides support to the decision process and fosters meaningful insights. Therefore, one way of defining knowledge is that knowledge is information delivered in the right context, where the context is given by other related pieces of information and also by the role of the user that needs the knowledge. Thus, knowledge can give users a 360 degree view, enabling them to see clearly in all directions. The more complete and personalized the knowledge is, the clearer it is becomes to the employee what he or she needs to do.

Information in a context is a static aspect of knowledge. It fosters insights but it does not tell us explicitly what to do, and who must do it. Knowledge also has a dynamic aspect that is captured in processes. A process describes the sequence of steps to be followed in order to solve a problem, what elements are needed in each step of the process, and who is responsible for it. The two components of knowledge provide the clarity sought by IT managers and employees: a clear

understanding of the situation and the possible courses of action, and a clear roadmap of the actions to be taken in each case. In other words, clarity fosters insights and enables actionable knowledge.

IT INFRASTRUCTURE KNOWLEDGE: THE KEY TO SERVICE EXCELLENCE AND CONTINUOUS AVAILABILITY

A direct outgrowth of the requirements of the e-business environment is the increase of formal service level agreements (SLAs) between service providers and customers. An SLA is a formal agreement that binds the service provider (IT) to the customer or end-user by defining levels of service and penalties for nonperformance, as well as remedies that can be implemented in the case of nonperformance.

SLAs are important first steps in helping IT organizations understand the impact of their service on an organization's core business. SLAs are important tools because the cost of downtime to organizations can be immense. Any downtime resulting in a degraded ability or inability to service customers has an impact on revenue. This economic impact can vary significantly depending on the degree of competition in the industry, as well as the loyalty of customers. Additional revenue losses due to downtime may be caused by delays in order fulfillment and billing losses, as well as investment losses resulting from an inability to invest incoming customer payments.

The push for continuous availability is also putting extreme pressure on IT executives to minimize maintenance windows despite an ongoing stream of software updates and patches, database maintenance, hardware configuration changes and network changes. IT executives are finding that when systems are down for maintenance, every minute counts.

To address this situation, organizations have put a significant new emphasis on implementing well defined and planned-out infrastructure management policies and procedures. Properly implemented IT infrastructure management processes minimize errors and ensure that scheduled work is completed within the maintenance window to avoid SLA penalties and damage to the end-user experience.

The IT Infrastructure Library (ITIL) guidelines, developed by the British government, represent a step in the quest to establish standards in the area of service management and provide the basis for improvement of the building and usage of the IT infrastructure. The ITIL Service Management processes include operational processes such as Incident Management, Problem Management, Configuration Management, Change Management and Release Management. They also include long-term planning and service improvement processes including Service Level Management, Financial Management for IT Services, Capacity Management, IT Service Continuity Management and Availability Management.

The implementation of a Service Management discipline is a continuous improvement cycle that starts by defining the vision and business objectives, followed by an assessment of the current situation, a process improvement or re-engineering phase and finally metrics and measurements that feed a review of the vision and business objectives.

Aggregating, organizing and integrating information from multiple sources about the physical and logical infrastructure is a crucial first step in IT Infrastructure Management (ITIM). Spreadsheets, AutoCAD drawings, Word documents, asset management systems, auto-discovery systems, Visio charts and databases need to be aggregated to create a single, central warehouse of all the information on the data center and its contents. Ideally, this repository should store information in a visual format, containing scaled drawings of the environment as well as detailed information on every device, including power and network requirements, maintenance contracts, repair history and a full accounting of its change history. In other words, the first requirement is to have the knowledge of the status of the IT infrastructure available in order to make the right decisions, at the right time, by the right people.

The second requirement for effective infrastructure management is the automation of standardized ITIM defined processes. This set of processes defines the required dynamic knowledge that multiple IT groups--including facilities, network services, platform engineering, configuration services and change management--need to effectively communicate, share information and deliver the required service levels and availability. These groups often operate as silos with their own processes and data sources, therefore automated process management enables these groups to clearly organize, streamline and better manage the delivery of services.

Finally, effective IT Infrastructure Management means that detailed information can be shared across the enterprise in an easy-to-use, intuitive and visual manner. In other words, it needs to be "actionable knowledge"- information delivered in context, in a format fit for immediate use that can foster actionable insights. Visualization is the most effective way to present information in a context.

In many organizations, information such as service delivery metrics or infrastructure utilization trends is not ready to be aggregated into concise, clear reports for management consumption. Providing fast, personalized access to this information, which usually requires hours of manual work by IT staff members, can simplify and enhance the process of making strategic decisions.

What is needed then is a single, central repository containing the appropriate digitized data, integrated with an advanced process management system that could provide IT management with visual access to real-time actionable knowledge. Such a facility is a key instrument for staying ahead of business demands and allowing the company to derive true value from its IT infrastructure.

NEEDED: A CLEAR PICTURE OF THE IT INFRASTRUCTURE

The main mission of the IT department is to provide the computing services required by the business users. To provide a quality, sustainable service, the IT organization needs to keep pace and even stay ahead of business demands by knowing the infrastructure status and capacity at all times. To that end, the IT staff should be able to identify, locate and manage virtually every technology asset, including hardware and software, networks, telecommunications lines and subsystems.

By most estimates, 40-70% of the time required to resolve an incident is spent locating the problem, which usually means to locate the faulty device. This information should be available to those who need it when they need it, to significantly reduce the mean time to repair (MTTR). To resolve problems faster and reduce repair time, the IT staff needs fast access to equipment location and accurate, up-to-date configuration information.

Because the mission of IT infrastructure is to service the company's business processes and their users, it is crucial to establish a clear relationship between the component of the infrastructure and the business applications they support. As applications get more powerful, they are continually spread across more equipment and infrastructure making their support more complex. IT managers need to know, for instance, all the servers supporting a specific application and what application resides on each server. This information enables IT managers to establish priorities and assess the business impact of down-time for emergency, back-up, change and upgrade operations, and to comply with the SLA agreed upon for the related applications.

In addition, IT executives should be able to clearly understand and manage IT asset inventories in order to avoid unnecessary spending. They should be able to control and ensure that the right assets are being purchased under the right terms, and are being deployed to the right people. To make better business decisions they need to have accurate and accessible information about their data center infrastructure capacity, and correlate it with the ever growing demands for service. To sustain and improve service levels and efficiency, the center needs to capture and analyze delivery performance.

The infrastructure data is usually available, but many times it does not support the decision making process. Too often this data is fragmented and spread across asset management repositories, spreadsheets, Visio charts and handwritten files that may exist around the organization. To provide actionable knowledge, the fragmented pieces of information need to be consolidated in a common repository, organized, and presented to the staff in the proper context in order to provide a clear picture of the IT infrastructure. This view should be linked to the standard management processes that will be executed as required.

PORTALS ENABLE PRODUCTIVE VISUALIZATION

Effective IT infrastructure management requires sharing detailed information across the enterprise in a clear, easy-to-use, intuitive visual manner. This actionable information should be delivered in the right context--in a format fit for immediate use.

The IT staff needs an efficient and organized way to access the wealth of information available to them, without having to deal with a sea of disparate intranet sites that makes the access to the right information a very complicated task. Staff members require a personalized view of the specific information sources that are relevant to their mission. They also need to share the information they produce so it can be leveraged by other members of the IT department.

Information visualization is therefore much more effective if it is delivered on an information portal. Information portals address the publishing and access shortcomings of traditional web sites and repositories by providing a framework for organizing, structuring and personalizing relevant information in a fast and easy way. Because the portal is built using browser technology, users are no longer tied to devices that reside on their desks; the portal can be accessed anywhere there is Web access.

Information portals address many of the "pains" users suffer when trying to achieve some clarity in the midst of the information chaos, and thus allow users to work more productively. Portals allow users to select the information sources they require and the links between these information sources. This is called personalization, which means that the employees can personalize both the content and the look-and-feel of their portals.

GAINING CLARITY INTO THE IT INFRASTRUCTURE WITH APERTURE VISTA

In-house building and maintaining an IT infrastructure management system that could provide the clear, actionable information required for effective decision making is a Herculean task that IT executives find hard to justify. This is especially true in today's economy, in which they need to show results and improve their ROI within the current fiscal year. Therefore, it makes sense to acquire a ready-to-use IT infrastructure management solution that will serve their needs and let them concentrate on the core competencies that are the user IT services.

Aperture is the leading global provider of IT infrastructure management solutions. Aperture products and services enable companies to increase operational efficiency and make better IT infrastructure decisions using advanced visualization and work-process technology. Aperture's flagship product, Aperture VISTA™, delivers the only portal-based solution for fully automating and managing the corporate IT infrastructure.

Aperture VISTA enables IT managers and employees to aggregate relevant IT infrastructure information on the portal, providing a clear view of the IT infrastructure. With Aperture VISTA, organizations can deliver and sustain the required availability, reduce the time to resolve problems and minimize the risks associated with change. The aggregated information can be used for analyzing current utilization and planning for future growth (or contraction), and is the basis for all operational decisions impacting the IT infrastructure. Aperture VISTA then delivers the knowledge about the state of the IT infrastructure to the right people, at the right time, in the right context, thus enabling an effective IT infrastructure management.

Aperture VISTA™ contains a central, visual repository of all IT infrastructure information. The visual repository aggregates configuration information on all IT equipment in a hierarchy of scaled drawings, including device location, power infrastructure, network connectivity and asset, application and customer information. In addition, Aperture VISTA™ maintains the relationships between these assets from a physical, logical and spatial perspective down to the detail of individual port and power connectivity. As changes are being planned and made, Aperture VISTA™ tracks the status of the changes and updates the repository as part of the process. The Aperture VISTA visual repository is an indispensable foundation for major data center consolidations, relocations or expansions.

Aperture VISTA™ includes a Web-based process management facility that enables the automation of the actions required for equipment installation: move, change and disposal. Its seamless integration with the visual repository provides fast access to actionable knowledge related to each task. This integration is key to enhancing the productivity, accuracy, and operational efficiency of the IT infrastructure management team. Organizations can distill best practice processes, providing clear roadmaps to efficiently coordinate the work across IT groups, and improving communications with customers and users.

CONCLUSIONS

Changes to IT environments now bring enormous potential risks to IT organizations. Complex IT environments coupled with high end-user expectations, the pressures to meet SLA agreements and a ruthless focus on cost reduction have significantly increased the risk of unsuccessful changes

Clarity is the key for the IT organization to achieving the required service excellence and continuous availability. The data center staff needs a clear view of the status of the IT infrastructure and actionable knowledge of how to execute both planned situations and emergencies.

Aperture VISTA is a unique management system designed to provide the clarity required for data center operational excellence. Aperture's visualization technology

enables the communication of information in a clear, actionable format, providing a precise view into the IT infrastructure. Because Aperture is interoperable with the leading enterprise systems and databases, Aperture can easily aggregate disparate information into a single visual view.

Aperture VISTA™ provides clearly defined engineering processes to ensure every change made to the infrastructure is documented and performed according to specification. By improving communications and automating manual processes, Aperture VISTA™ reduces the risks of failures associated with change, incident, problem and release management handling, thereby providing increased operational efficiency and delivering true management clarity.

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