WHITE PAPER

Enabling Workplace Transformation

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IDC OPINION

Pressure on IT teams to innovate, provide more for less, and to better align IT with business is relentless. While corporate systems have been the focus of investments as well as that of day-to-day operations management, the emerging competitive need for collaboration within the organization, with customers and business partners, means the needs of the individual now require attention.

However, in parallel, the drive for greater organizational responsiveness means corporate IT itself needs to continuously morph to become dynamic. Managing the duality of corporate infrastructure direction and individual user experience is often at the crux of the IT team's dilemma, and the conflict pervades decisions ranging from investment strategy and development priorities, through to operational management and support concerns. IDC believes that this source of conflict will continue to escalate, as pressure to introduce greater information system flexibility vies with minimizing user disruption.

The path to mitigating such conflicts lies in architecting a corporate information system architecture based on 12 hinge technologies and six management principles, to enable necessary focus on the individual's IT experience, and to instill confidence in business managers that their information systems support organizational responsiveness needs.

IDC believes businesses that provide their employees with a workplace environment that is progressively supported by "dynamic IT" will see demonstrable improvements in personal productivity, collaboration, and increased organizational responsiveness.

IN THIS WHITE PAPER

In this White Paper, IDC explores the issues around supporting individual employees. It is targeted at IT management and discusses technology governance concerns, how sourcing is one of six guiding principles toward achieving dynamic IT, and how user-centric services is an integral part of the sourcing equation.
SITUATION OVERVIEW

The next generation of IT — what IDC calls dynamic IT — is about creating a high-performance IT capability that can support the rapid pace of business change by empowering users with robust yet flexible information systems. In looking at the key building blocks, the "hinge" technologies, for evolving from a rigid to a dynamic IT environment, our key conclusions are as follows:

- Organizations are pursuing dynamic IT transformation on two major (and complementary) paths: more rapid business strategy enablement and increased IT operational efficiency. This approach needs to be visible to individual employees in a workplace that is pervasively connected, adaptable, and moves transparently between fixed and mobile environments.

- There are 12 hinge technology areas for developing dynamic IT capability: six focused on business strategy enablement, and six focused on IT operational efficiency. IT organizations should put particular investment focus on these areas. These are detailed in Appendix 1 of this study.

- For each of these hinge areas, plans should be assessed on how well they support six critical principles that underpin almost all dynamic IT capabilities: end-to-end view, service-oriented architecture (SOA), leverage of standard components, virtualized resource model, flexible sourcing model, and flexible funding model. In particular, when considering the holy grail of employee productivity, the assessment should include how individual users are being served.

Why Should the Information Worker Enjoy Increased Attention?

Collaboration as a concept is gathering momentum, and for good reason. While business managers have been investing in structural and procedural changes to drive greater competitiveness, the resources who execute on these changes are in fact the individuals who make up the "process". Consider for a moment the life of the average employee, who has in fact become an information worker:

- Role and responsibility becoming more demanding, such as interaction with multiple points within the organization, in an increasing number of business that are becoming extended enterprises, and interaction with multiple points outside the organization too. Keeping pace with the volume of information, policies, and methods of working are daunting prospects.

- Speed at which tasks need to be completed keeps shrinking. Management gurus espouse, and management demands, faster turnarounds in almost every type of business transactions. Access to information needs to be reliable, pervasive, and streamlined to avoid overload or time wasted on inappropriate or irrelevant data. Reliable access to corporate information systems and communications networks is also a critical requirement of the information worker.
Diverse environments. Perhaps the most significant challenge to the information worker is the pace at which the workplace is becoming more diverse. Gone are the days of being able to conduct business from the comfort of a stable office desk. Moving forward, workers expect that customer expectations for real-time response will mean working from the office, home, and while traveling — in short, a diverse workplace will be the norm.

**Priorities for Enabling a Dynamic Workplace**

The very real challenge facing the information worker today underscores the need for more attention, investment, and management of the workplace. IDC finds that the tension between the organizations’ need to develop more dynamic IT, and maintain or reduce IT budgets, requires executives to be selective and have a clear sense of priority when developing their game plan. IDC observes users’ strategies are driven by three primary objectives:

- **Speed.** Respond faster to changing business needs
- **Performance.** Provide better IT service levels in support of business
- **Cost.** Continuously drive down IT unit costs

These priorities lead to the two principal paths for dynamic IT transformation that IDC sees users taking:

- **Business strategy execution and automation:**
  - Focus on responding faster to changing business needs by improving the ability to quickly develop and integrate applications, data, and workflow that support new business requirements
  - Use IT to monitor business performance and speed the business’ operational adjustments to market changes

- **IT operations management and automation:**
  - Focus on delivering higher IT service-level performance in support of the business and lowering the costs of infrastructure on which the business applications depend.
  - Link, monitor, and manage — end-to-end — all IT operational elements that support a business activity, from hardware and system software, to business applications, data, workflow, and business process (see Figure 1).

Not coincidentally, these two paths map directly to the two largest IT management domains: the application development/integration function, and IT operations.
End-to-End Dynamic Management Is the Heart of a Progressive Workplace

These two domains have been segregated in many organizations. But for a truly dynamic enterprise, it is vital that any current or future IT transformation effort, no matter how narrowly focused on either IT operations or business process enablement, break through the barriers between these traditionally distinct IT domains. Productivity gains at an individual employee level will only be accelerated by providing access to information systems that are seamless, integrated, robust, and reliable.

To this end, as many resources as possible that support a business process must be logically linked together in an end-to-end, dynamic management view. The IT operations staff should have a clear view of the entire “IT value chain” — servers, storage, networks, systems software, data, middleware, applications, workflow systems, communication/collaboration systems, and end-user devices — supporting the execution of a business process. Likewise, application integrators/developers as well as data and workflow architects should have a clear view into the operating environment that supports their systems so they may factor operating environment realities into their designs.

Create new business value through IT by:
1) More quickly and cost-effectively developing / integrating the applications, data and workflow that support business process execution.
2) Using IT to directly monitor and adjust performance of the business.

Increase IT operational efficiency and performance
Deliver better IT operating performance in support of the business and lower IT operating costs by:
1) Automating labor-intensive tasks
2) Developing end-to-end management capabilities
3) Reducing “hardwired” inflexibility through virtualization
4) Adopting flexible sourcing and payment options
**Blueprint for Success: Six Pervasive Principles**

IDC sees six pervasive principles as defining the next generation of dynamic IT, and when reviewing and updating strategy and programs, we believe an important consideration is how well plans align with these principles.

1. **End-to-end design and management.** We have discussed this critical dynamic IT principle earlier. The best dynamic IT designs are those that are aware of other parts of the IT value chain that support a particular business activity, and its impact on the individual user. This includes infrastructure management tools (including monitoring, management, security, service-level automation, provisioning, and other tools) that are aware of the business applications, data, and business processes that the infrastructure supports. This also includes application and data modeling, development, and workflow design tools capable of capturing business needs and consuming information about the overall computing environment to optimize design and performance. Service-oriented management technologies are also one area of evolving innovation to interconnect IT assets to the higher-level business computing tiers and provide end-to-end visibility, driven by business rules or service-level requirements.

2. **Service-oriented architecture.** Service-oriented architecture (SOA), as implied by its name, is an architecture and design methodology. This vision promotes the abstraction of various components of the computing environment, allowing for greater levels of flexibility, optimization, and control. Many organizations are beginning to realize the benefits of orienting their systems around this construct, especially in light of the recent software industry momentum in developing and extending interoperability standards, such as Web services, grid, and identity. The ultimate design is to maximize reuse, interoperability, and architecture to optimize IT change management that can evolve and keep pace with the business, and especially offer flexibility for the individual user.

3. **Modular design, standards-based.** Leveraging modular, or component-based IT assets allows organizations to streamline costs, increase reuse, and simplify support. It is a fundamental principle underlying SOAs in the software world. However, we break it out separately because it is also an important principle in IT hardware, including new-generation, high-performance servers, storage, and network systems. Our reference to "standards-based" simply means that software or hardware that leverages either de jour or de facto market standards maximizes the cost benefits, sourcing options, and integration capabilities.

4. **Virtualized resource model.** Whether for systems, storage, networks, software, or information/data, virtualization enables growing the number of logical connections among IT resources and the business processes they support. By virtualization, we mean providing access to IT resources through a logically defined (e.g., resource functionality) interface, rather than through a direct interface that describes physical attributes (network or system address, physical size, source programming language, etc.). The key benefit is greater flexibility to change underlying physical resources (e.g., pieces of applications, databases, servers, networks, storage) with minimal disruption to the IT systems and resources that depend on them.
5. **Flexible internal/external sourcing model.** IDC believes that a critical principle of dynamic IT is to ensure that the architecture enables sourcing flexibility for as many IT capabilities as possible. Third-party services are available that address very small pieces of the dynamic IT blueprint, in both IT operations and development. An ancillary benefit of building a dynamic IT capability is to maximize the flexibility to insource and outsource different pieces of IT as business conditions require. IDC believes that service providers’ offerings will increasingly mirror the dynamic IT architecture we have presented here; those that do will offer the best options for the dynamic enterprise.

6. **Flexible operating cost model.** We have not addressed financial models for acquiring or managing IT in this document. However, one of the sources of inflexibility in many IT organizations today is the large fixed-cost commitment in IT operations. A growing number of suppliers of both IT products and services are offering flexible, usage-based pricing models. Taking advantage of such offerings is an important step in adding dynamism to the financial side of IT, shifting more of the IT cost base from fixed to variable to address the need for simple, common blueprints for how IT organizations can evolve to better support enterprises. IDC is introducing the dynamic IT blueprint as a means of normalizing the many different labels and visions for the next generation of IT.

**MANAGING TECHNOLOGY: HP'S APPROACH TO END USER WORKPLACE SOLUTIONS**

In 2004, HP made significant investments to upgrade its portfolio of services targeted at helping its customers address the person-level support for enterprise IT users. Under the banner End User Workplace Solutions (EUWS), IDC finds that HP has been creative in bringing together the three axes of user productivity: device and application, technical expertise, and investment horizon.

These axes are addressed in a holistic package, as illustrated in Figure 2 below:

- Device and application support comprises desktop, mobility, messaging and collaboration as well as imaging and printing.
- Technical expertise is addressed by way of help desk solutions.
- Investment concerns are managed through HP’s financial services.
While HP is positioning these as a collection of services that together would provide an integrated approach to supporting users, the services can be engaged on a piecemeal basis. For many customers, starting with a few components and then scaling up to the broadest level will make sense. Each of HP's components have options within them:

- **Comprehensive Outsourcing Solutions** focus on the outsourcing of a customer's complete desktop management and support environment.

- **Desktop Lifecycle Solutions** comprise services that enhance the planning, deployment, management, transition, and multi-vendor support for access devices such as desktops, laptops, handheld, workstations, and printers.

- **Wireless and Mobility Lifecycle Solutions** focus on the needs of mobile users for anywhere, anytime, secure access to company information and services, including remote support, telephony, and wireless access to corporate business applications.

- **Messaging and Collaboration Lifecycle Solutions** provide for communication needs and information exchange between enterprise customers, partners, suppliers, and employees.

- **Imaging and Printing Lifecycle Solutions** provide end users efficient, integrated and secure desktop, networked, mobile and on-demand printing as well as imaging solutions.

- **Help Desk Solutions** comprise the spectrum of Service Desk, Help Desk, and support solutions to resolve end-user and multi-vendor system problems efficiently.

- **HP Financial Services** provides a total financing solution to help customers find an affordable solution, whether investing on an individual project or deploying a region-wide solution.
IDC sees this approach as putting the individual user at the center of the services, one that works with the CIO’s team to design ongoing support and systems management solutions to instill confidence in business managers as their teams’ expectations of technology are met.

OPPORTUNITIES AND CHALLENGES

HP’s holistic approach calls for robust delivery infrastructure and skilled professionals to meet agreed user-friendly service levels. Much of the infrastructure and professional force needed is already in place as part of HP’s ongoing customer support delivery organization. However, for truly seamless end-user workplace services as described above, HP will also need to provide support and expertise that spans technologies from a number of other vendors — players ranging from device manufacturers, communications services providers, and the complete software stack of operating systems, utilities as well as applications. Maintaining a service delivery capability that incorporates multivendor capability will be a challenge.

Such a capability will also be an asset, one that could open up new markets for HP’s EUWS to new vendors interested to being part of a seamless services delivery capability, and their customers wanting access to such capabilities.

Most significantly, this offering from HP is capable of touching the six principles that underscore dynamic IT, a potential that will be realized by HP as it continues to add to the portfolio. IDC believes that while its progress to date in continuously enhancing the portfolio is remarkable, much more work, and opportunity, lies ahead as the applications layer is pursued with more vigor.

CONCLUSION

Businesses winning in the globally competitive market are increasingly dependent on knowledgeable employees making sound decisions in a timely manner. The infrastructure and services to support these workers need to keep pace with the rising bar on responsiveness. IDC believes that the relentless pressure on IT can only be tamed by visionary governance and rigorous adherence to architecturally defined management principles. The pursuit of standardization, virtualization, design optimization, service orientation, and flexible cost and sourcing structures will distinguish successful IT leadership from the rest of the market.
APPENDIX 1 — HINGE TECHNOLOGIES

IDC believes that increasing the dynamism in each of the following 12 hinge technologies should be the priority for progressive IT governance, and will serve well as a foundation for enhancing the workplace to achieve greater user productivity.

- Business monitoring and analytics: measuring business performance to trigger dynamic change. This is a very visible and important capability for dynamic IT because it offers enormous value for business managers: the ability to collect and analyze information from across the business, and monitor how the business is performing in a timely manner. Today, the focus is on quickly and flexibly serving up information through management dashboards or portals. The long-term vision is to allow real-time monitoring and analytics systems to communicate back to operational systems to directly trigger changes in the business (pricing, distribution, sourcing, etc.) in response to market conditions and business performance.

- Business process management and application automation: quickly configuring applications and workflow to support the business. In a dynamic IT environment, flexible models of the organization’s key business processes, not large packaged applications, are the key enablers. Packaged applications are still important, but even more so are business process-focused solutions using reusable application logic (from packaged and custom applications and components), business rules, and workflow. The vision is to automate both unique and commonplace business activities, standalone or combined, to streamline operations across the enterprise. Leverage of standards, particularly Web services standards (WSDL and SOAP) and evolving process standards such as BPEL, drives greater flexibility for change, reuse, and interoperability.

- Information and data services: defining and accessing all relevant information as needed. Enabling access to all relevant information across distributed, disparate information sources is essential for dynamic enterprises. Technologies that support integration, transformation, and quality of information in a time-sensitive manner are critical to the dynamic enterprise. Modeling and metadata management advances (flexibly defining and managing information ontologies and relationships virtually across the entire data store) are advancing the accessibility, usability, and interpretation of masses of information. The industry is on the cusp of combining structured and unstructured data, as well as processes and other system elements that enable better contextual understanding.
Integration, event, and deployment services: connecting, processing, and managing end-to-end messages, events, information, and application logic.
Core to the dynamic enterprise is the notion of connectivity and performance. A next generation of integration technology focusing on supporting real-time interaction among systems and sources for concurrent, asynchronous, and synchronous message streams with contextual and state awareness is being facilitated by the adoption of standards such as Web services. The bundling of functions to support deployment, optimization, and quality of performance, management, security, and tiers of workflow promises reduced complexity and higher throughput.

Collaboration and communication services: supporting human interaction in the business process. These technologies focus on coordinating resources for interaction, especially those enabling workforce productivity. Today’s business environment demands near instantaneous and ad hoc activities among multiple parties. The ability to unify and facilitate instant communication, networked functionality, and sharing of resources is critical to remaining agile, responsive, and creative. Globalization continues, and enterprise networks need to expand and adapt, addressing fluctuations in participants. To date, much of this category of computing has remained isolated from the automated functions and overarching business processes within an enterprise. The assimilation of these into the mix will produce dramatic labor, cost, and risk reduction while increasing innovation and flexibility.

Access and interface services: providing navigation and interactive experience inside and outside the enterprise. Given the tremendous and growing complexity and volume of systems and sources typical in today’s computing environment, navigating and accessing these in context of role and function has become increasingly critical. Consolidating efforts in sign-on and standardizing procedures is just a rudimentary first step in truly addressing the user experience. The proliferation of devices and embedded technologies continues to expand the horizon of touch points, and, once interconnected, will dramatically expand opportunities to automate processes.

Service-level management and automation: triggering deployment and redeployment of IT resources. Service-level management and automation include the emerging automation or orchestration engines that automatically trigger the provisioning of enterprise systems from virtual pools of infrastructure. This automated provisioning segment of the dynamic IT architecture is what finally achieves an on-demand or utility IT operating environment. This requires the setting of service level agreements (SLAs) and the setting up of resource priorities for different workloads and services that the infrastructure delivers.
Metering, measurement, and chargeback: measuring and charging for IT resource usage by business group or activity. This area is focused on leveraging metering metrics determined by the client (e.g., processors, storage, memory, transactions, users, cycles) for usage measurement and billing to departments and customers, utilizing a shared resource pool that is governed by service-level management and automation. It is a critical foundation for informed decision-making about the operating costs (and value) of information management. Customers may or may not enable this level of functionality based on the role of their enterprise IT resources, whether the IT department is managed as an overhead or pay-for-service operation.

Security: protecting the entire IT environment. Applications, application components, data, and IT infrastructure. Security runs parallel through all the layers of dynamic IT. Security begins in the hardware component layer of the infrastructure, and builds on itself into the software and services layers to ensure privacy between customers and departments in a shared resource environment. Security is an instrumental enabler for the adoption of a shared resource environment and for a dynamic enterprise architecture. Security is an extremely large topic with many facets, including authorization, access, and protection. An increasing focus for standards and innovation currently revolves around all dimensions of managing identity throughout and beyond the enterprise.

Infrastructure virtualization: creating efficient, virtual pools of server, storage, and network services. There are many layers of virtualization employed within an enterprise environment, with virtual partitioning being perhaps one of the more widely deployed today. This segment of the dynamic IT architecture refers more broadly to the virtual pool of resources (including server, storage, and network devices) supporting enterprise workloads, applications, and business processes. Essentially, the virtual pool of resources is a grid of enterprise systems that can be allocated and reallocated to different workloads depending on the SLAs and priorities set by the service level management and automation engine (see above).

Infrastructure provisioning: enabling rapid and consistent deployment of IT resources with improved change control. This represents the tools that provision a platform with operating systems, patches, applications, and services that allow it to be a resource for a given workload or application stack. Provisioning tools may be automated (and therefore controlled) by the service level management and automation engine; or tools may be more manual, in which case they may help IT managers deploy patches or upgrades to groups of servers remotely.

Platform management and monitoring: enabling system monitoring, inventory, alerting, group management, and capacity management. This represents individual node and group systems management that enables IT administrators to manage the hardware and software elements of groups of storage, server, and network equipment. It includes functions such as system monitoring, inventory, alerting, group management, and capacity management.
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