



dba DIRECT

7310 Turfway Road STE 300
Florence, KY 41042
877.687.3227
www.dbadirect.com

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Third Wave Infrastructure Management:
*How Predictable, Process-Driven Infrastructure
Drives Strategic Value in IT*

*By John Bostick, CEO
& Britton Manasco*

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Executive Brief

If IT organizations are to provide higher levels of strategic value in the coming years, they must first ensure IT infrastructure is rigorously managed. That is why *infrastructure management* – the disciplined handling of foundational IT assets and activities – is so critical. Few IT organizations will be able to deliver innovation, intelligence and differentiated value if these foundations are not solidly in place.

Considering the mission-critical nature of much of today's infrastructure, many companies today devote vast resources to its upkeep and supervision. But here's the problem: foundational IT assets and activities provide virtually no competitive differentiation. They don't contribute to the profitability of the enterprise.

In order to concentrate more IT resources on the activities that do in fact provide a competitive advantage, it's vital to embrace "third wave" IT infrastructure management. That will require companies to replace low productivity, low performance, labor-intensive approaches to infrastructure management with a systematic approach based on operational excellence and an ability to scale up over time.

The essential shift is happening now. Companies that recognize the necessity to gain operational control of their IT infrastructure assets and turn IT into a strategic differentiator are leaving the station. They will pull away from their competitors and realize significant payoffs in the next few years. The question is: Are you on that train?



1.0 What is IT Infrastructure Management?

The term “infrastructure management” conjures many different definitions today. We believe IT infrastructure management represents the handling and control of various activities and assets that support the operational objectives of the enterprise. Among them: network support; hosting; help desk services; messaging; security; and database administration.

We distinguish the foundational, *infrastructure layer* from the strategic, *application layer* of IT management. While the infrastructure layer supports the operations of the enterprise and can be mission-critical in nature, the application layer enables and even drives competitive distinction. This is an aspect of IT that enhances business value, provides intelligence to decision-makers and the front lines, and facilitates the process of innovation. Indeed, IT has moved from the back office to the core, value driving sources of the enterprise. But it is often starved for resources.

Enterprises must consistently find ways to shift IT resources, energy and attention away from the foundational layer and move them to the strategic layer. This is how organizations win in the marketplace – and this is how the strategic value of IT becomes increasingly clear and vivid. However, organizations can’t address this objective by relying on the same labor- and resource-intensive approaches they have always used. They cannot redeploy their people to strategic activities if they are mired in low value added tasks that offer no competitive distinction.

The challenge is to recognize that IT organizations cannot move up to the strategic, competitively differentiated, application layer of management until they have solidly built a foundational platform of infrastructure. If they attempt to rise to higher levels of business value, they will continue to be pulled down by flaws and inadequacies in the underlying infrastructure.

But they can’t move up the value ladder either if their people are deployed on high-cost, low-impact activities that don’t scale. If the infrastructure cannot cost-effectively scale to meet their strategic demands, there will be no strategic opportunities to seize.

2.0 Three Waves of Infrastructure Management Outsourcing

Companies have long recognized the challenge addressed here in some form or fashion. While they have taken steps to internally automate aspect of IT infrastructure management, they often come to the conclusion eventually that much of the infrastructure is best left to outsourcers. Over the years, there have been three essential waves of IT infrastructure outsourcing. Among them:

- Cost-Driven Outsourcing
- Competency-Driven Outsourcing
- Predictive and Process-Driven Outsourcing

The first wave was concerned primarily with cost. Going back to the 1970s and 1980s, the trend really started to pick up as companies looked to large outsourcing providers to manage their data centers including their mainframes and other types of foundational infrastructure. This wave also covered back office operating processes such as payroll and transaction processing. Companies realized they could reduce back office operating costs by turning to outsourcers who could leverage their own infrastructure and people across many clients.

The second wave – which hit in the early 1990s at the apex of reengineering – was concerned with maximizing core capabilities or competencies. Companies realized they needed to concentrate on the activities they did best if they were to remain competitive. However, the outsourcing options available to them continued to require labor-intensive and relatively unproductive solutions. Negotiations around outsourcing often revolved around the number of people that would be devoted to specific tasks. While resumes were often scrutinized, little

attention was put into introducing new, more productive approaches to infrastructure management.

The popularity of offshore outsourcing in recent years largely represents a combination of these two earlier waves. Companies clearly are looking offshore for cost advantages. Labor for certain foundational roles is much cheaper in places such as India and Eastern Europe. But companies also justify their offshore decisions in terms of maximizing core competence. They note that many highly skilled IT professionals are now found abroad – individuals that can competently take over operational tasks that represent no competitive value. The problem is that offshore outsourcers often merely continue managing infrastructure in the same low productivity, labor-intensive ways as everyone else.

The third wave actually began to grow in the late 1990s in certain areas and is now gathering force. We have seen a shift toward predictive and proactive infrastructure management in areas such as network support, messaging, help desk management. The newest areas that are being targeted for this kind of approach are security and database administration. It is a shift toward infrastructure management based on discipline, agility, scalability, global support and operational excellence. This wave is about proactive systems, methodologies and processes as opposed to reactive, labor-intensive approaches. It recognizes that gains associated with low-cost labor in the short-run cannot be sustained over time as the operational demands of enterprise IT infrastructure increase.

“This is the new paradigm,” says Tim Ferguson, executive director of the Infrastructure Management Institute at Northern Kentucky University. “Forward-looking CIOs now realize that infrastructure is not a competitive differentiator for them. It is becoming a commodity. The most advanced companies, many of which are in the *Fortune 100*, are looking for ways to intelligently outsource their infrastructure so that they can concentrate on the activities that represent a competitive advantage.”

In the 19th century, far-sighted investors began pouring capital into railroads and rail networks that would soon traverse America and Europe. As the infrastructure was put in place, commerce exploded – leading to an economic boom of unprecedented proportions. The scale of trade and travel reached remarkable new levels. Meanwhile, those who moved goods through carriages, canals and even steam ships saw their businesses steadily eclipsed as those methods of transport diminished in relative importance.

Something much like this pattern is repeating itself in our global, hyper-competitive and internet-worked era. Instead of moving goods, we are moving information. It is now the volumes of data, transactions and interactions that are exploding. In order to keep up with demand and capitalize on our resources, we need dynamic infrastructure that can scale. We need infrastructure management based on precision and measurement, process discipline and operational excellence. It won't do to simply hire more carriage drivers or seek lower costs for canal transport. Not when the train is leaving the station.

3.0 The Case for Rethinking Infrastructure Management

The productivity of IT operations groups should be a key concern for companies as they address the competitive challenges of today's markets. While investments in hardware and software declined from \$363 billion in 2003 to \$315 billion in 2004, investment in personnel-related expenditures – IT salaries, benefits and IT services – grew from \$370 billion to \$390 billion during the same timeframe.

According to Forrester Research, the key drivers of this accelerated growth in personnel costs are: the increased complexity of applications; the lack of maturity of IT management processes; and the lack of IT process automation.



Due to growing complexity and an absence of rigorous processes, IT operations groups “spend an inordinate amount of time in the trenches, leaving less time available for more strategic work and forcing firms to hire more IT personnel to address the problems,” writes Jean-Pierre Garbani, a senior analyst with Forrester.

Garbani believes the solution lies in process improvement and automation. “One key element of improving industrial processes is automation,” he states. “Using automation for a number of repetitive tasks guarantees higher quality and lower costs. This is also true of IT processes.”

The big question now is whether companies will continue to try to handle these infrastructure challenges on their own or whether they will turn to specialized outsourcers. And while the limitations of conventional first or second wave outsourcers have become increasingly clear over time, some progressive companies are having great success with third-wave outsourcers. Whereas prior waves of outsourcing were based on asset shifting or global labor arbitrage, third wave players base their businesses on systematized processes and IT automation.

One national retailer turned around its financial fortunes by selectively outsourcing several infrastructure components including network management and database administration. This enabled the company, which operates on very thin margins, to better manage its data assets – using business intelligence and data mining to identify bottlenecks, streamline operations and more strategically manage its supply chains. This recognized company is now on a fast growth track as IT becomes a strategic partner in the business as opposed to merely a provider of tactical support.

Another large mid-western research hospital has developed a service-oriented architecture to unify the clinical and research sides of the enterprise. Now, the IT infrastructure comes together at the point of patient care, enabling the hospital to securely manage huge amounts of patient data and provide higher levels of service. By outsourcing help desk, messaging and

intrusion detection services, it has not only achieved operational excellence and wrung out costs, it has freed up resources to develop and roll out the innovative services that will enhance its prestige as a world-class healthcare institution.

While much of the challenge of process automation and improvement concerns the internal work of the IT organization, it’s clear this principle must also apply to an enterprise’s infrastructure outsourcing partners. If companies are to seek the benefits of infrastructure outsourcing, they must look to partners that not only address concerns of cost and core competency, but process automation and improvement as well.

Whether an IT infrastructure process is kept in-house or outsourced, continual process and productivity improvement is critical – and this will depend on automated systems. The problem with many first and second wave outsourcers as well as the offshore outsourcing firms is that they often don’t adequately address these concerns. They have very little strength in terms of process automation and systematized service delivery. That’s where the third wave of infrastructure outsourcers – whether in the areas of network support, help desk or database management – have proven most compelling.

4.0 What to Look for in Third Wave Infrastructure Management

Companies today are seeking operational excellence from IT. That’s one reason IT leaders often are reluctant to outsource many activities to first and second wave outsourcers. They see no advantages emerging in terms of operational strength – even if they may identify cost advantages associated with going offshore in some cases.

The challenge ahead is that operational demands will only grow as companies become more strategic with their IT. If their foundations are not solid and scalable, then the whole house of cards can fall.

Companies increasingly need to outsource



in order to concentrate their resources on strategic activities. But outsourcing partners cannot deliver true operational excellence if their business models are based merely on skilled labor. They must have world-class processes, methodologies and systems in place if they are to cost-effectively scale to meet the growing infrastructure demands of business.

“Companies now realize that the old ways of managing infrastructure won’t get them where they need to go,” says Tim Ferguson of the Infrastructure Management Institute. “But most have not yet made the leap necessary to embrace the new approach. Their dissatisfaction with the current state of infrastructure, however, will be a significant driver of change and momentum over the next 3-5 years. The most progressive companies, in fact, are taking action now.”

So what should companies look for in a third wave infrastructure outsourcer? There are several key capabilities to expect and seek. Among them:

4.1 Proactive Methodologies and Capabilities. Rather than waking up a service technician or a database administrator in the middle of the night to deal with a problem, third wave outsourcers support the infrastructure around the clock. Central to the success of third-wave outsourcers in network management, help desk, database administration and other areas is their ability to actively address concerns and problems on a 24x7 basis. Their monitoring capabilities give them clear visibility into the operational issues associated with their area of specialization.

Third wave outsourcers rely on systems, methodologies and critical success factors to ensure they deliver on their service level agreements with clients. It is often impossible to provide these levels of service if the activities are managed in-house or overseas – models that cannot offer 24x7 monitoring and problem resolution.

4.2 Predictive Assessment and Action. While in-house and outsourced talent can solve problems reactively, they generally don’t have the process-driven systems necessary to predict and analyze key

patterns – and take action with respect to that knowledge. One of the key benefits of systemic, automated solutions is the clear visibility they provide into technical problems and the ability to analyze the likelihood of them occurring.

Third wave outsourcers constantly assess and analyze infrastructure performance to ensure it is meeting established service levels. They have access to trending data and can actively predict, for instance, when a company may run out of data storage capacity with respect to current business initiatives. Drawing on insights and best practices from an array of clients, third-wave outsourcers provide predictive guidance to their clients that helps them better invest in IT infrastructure for maximum effectiveness.

4.3 Dynamic, Scalable Business Models. Whereas business models based on labor can scale up arithmetically, business models based on systems can scale exponentially. While process-driven outsourcers actively leverage the skills and expertise of their people, labor-driven outsourcers add more people to meet greater demands. Over time, these two models lead to a significant divergence in terms of value, quality and capability. Whereas low labor cost models offer apparent advantages in the short-term, they may be unable to cost-effectively scale to meet the growing needs of their clients as time passes. Nor can their systems capture the knowledge and insights drawn from past experience. When talent is hired away, they take their client knowledge and experience with them.

By contrast, third wave outsourcers actively learn from experience and continuously improve. Knowledge is captured and embedded in the system, not merely in the minds of consultants. At present, the demands are exploding for infrastructure in the forms of network support, computing capacity, data storage, database administration, help desk assistance, security and other areas. Companies that hope to keep up with these trends and meet the enormous infrastructure demands associated with strategic IT must have service providers who can scale to meet their needs.



Finally, it's important to recognize that companies can realize quick wins with respect to many third-wave outsourcers. Third-wave outsourcers often handle discrete, technical tasks associated with specific aspects of the underlying IT infrastructure. Whereas some outsourcers handle a wide array of outsourcing roles and manage all sorts of IT assets, third-wave outsourcers tend to specialize.

In a recent study of outsourcing, the MIT Center for Information Systems Research found that "transaction relationships" – outsourcing which involves the execution of a well defined, repeatable process – offers "statistically significantly greater satisfaction" to clients than larger, more far-reaching and less focused outsourcing relationships. The study pointed to 90% success rates for both vendors and clients. By contrast, so-called "strategic partnerships" – where an outsourcer takes responsibility for a bundle of operational services on behalf of the client – led to success in only 50% of cases.

While it's likely that all outsourcers will move toward the process-driven, third-wave model over time, it seems that many of the most disappointing outsourcing relationships today are still riding the labor-driven first or second wave. Fortunately, there are opportunities for companies to begin embracing third-wave outsourcing now in a way that represents limited risk and rapid returns. That is clearly one path to operational excellence as the challenges of infrastructure management become increasingly clear.

5.0 The New Paradigm

All crises begin with the blurring of a paradigm and the consequent loosening of the rules for normal research... a crisis may end with the emergence of a new candidate for paradigm and with the ensuing battle over its acceptance. --T.S. Kuhn, 1962

In his classic book *The Structure of Scientific Revolutions*, Thomas Kuhn explained that a paradigm is a worldview that is vulnerable to being displaced when new ideas render it obsolete. When a sufficient number of "anomalies" have

appeared and bedeviled the present paradigm, then it is thrown into a state of crisis. During this period of turmoil, new approaches come to the fore and are implemented. As a new paradigm emerges, the promoters of this new worldview find themselves locked in a pitched battle with defenders of the old worldview, explains Kuhn.

This is the state of affairs that enterprises, the field of IT, and vendor and solution providers are now confronting. It's increasingly clear that conventional approaches to infrastructure management are not aligned with the expectations and demands of our fast-paced, networked, global economy. However, the new paradigm has not yet been thoroughly articulated or embraced. Indeed, there is plenty of evidence of resistance in both the IT and vendor camps.

And yet, the outlines of this new paradigm are now in sight. Companies that embrace this new worldview will increasingly concentrate their internal resources on IT that delivers a competitive advantage and will outsource or partner to manage the rest. And they will distinguish "third wave" infrastructure management and outsourcing from the alternatives. Third wave solutions will be solidly based on predictability, scalability and process-driven systems, not personal expertise or globally arbitrated labor.

Times of great change, of course, require bold, yet thoughtful leaders. To make this transition successfully, they will need to develop actionable plans that enable them to move dedicated resources from foundational to strategic IT. They will also need to concentrate on getting quick wins through the outsourcing of discrete, well-defined activities that represent manageable risk and measurable rewards.

Clearly, the IT infrastructure world is now in a state of turmoil. The costs of maintaining the existing infrastructure continue to come at the expense of innovation and strategic value. The only question now is whether companies will embrace the new paradigm or remain committed to supporting, maintaining and defending the old one.

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