



## Research Brief

### Don't Overlook Business Resiliency and Security When Building a Dynamic Infrastructure

#### *Introduction*

In November, 2008, IBM announced a major initiative (smarter planet) that focuses on showing enterprises across all industries how to use information technology (IT) more efficiently to support business objectives. This initiative calls for enterprises to rethink how they are managing and mining data; how they use energy; how they flow work and processes; and how they build their systems/storage/network infrastructures.

The cornerstone of this initiative is a business/IT strategy that IBM calls "dynamic infrastructure". By building a dynamic infrastructure, IBM believes that enterprises can lower operational costs, improve service, and manage risk more effectively.

To build a dynamic infrastructure, IBM recommends that information systems be virtualized and automatically provisioned. IBM also recommends that a service-orientation to the architecture be used for program-to-program interaction and data federation — and to assist in transparent business process flow. And IBM also calls for a change in the way that systems/storage/networks are managed (IBM is calling for a focus on "service management" [the management of application/database services, information infrastructure, business resilience, security, energy efficiency, virtualization, and assets]).

*IBM's dynamic infrastructure strategy is based on years of IT cost-cutting/systems tuning experience — both internally and in conjunction with its customer base (so this advice is well founded). By following the dynamic infrastructure path, IBM shows that IT executives can indeed reduce operational costs, reduce management cost, and increase IT asset utilization.*

IT executives are readily embracing IBM's recommendations for a dynamic infrastructure. Systems/storage consolidation and virtualization are two of the hottest trends in the IT industry. And SOA infrastructure adoption is rising steadily.

*But, Clabby Analytics (that's me) has observed that many of these enterprises are implementing these technologies as "point solutions" — rather than considering the bigger operational picture. When building a dynamic infrastructure, enterprises need to consider how to effectively manage disparate, virtualized environments; how to properly secure these environments; and how to ensure business resiliency and compliance when managing these environments.*

In this *Research Brief*, *Clabby Analytics* takes a closer look at IBM's smarter planet initiative and its dynamic infrastructure strategy. I define each in broad terms — and then turn my attention to the bigger picture: how business resiliency and security relate to dynamic infrastructure. I conclude the following: "when deploying a dynamic

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infrastructure, remember to build business resiliency and security into your architecture in order to ensure continuous business operations and lower risk”.

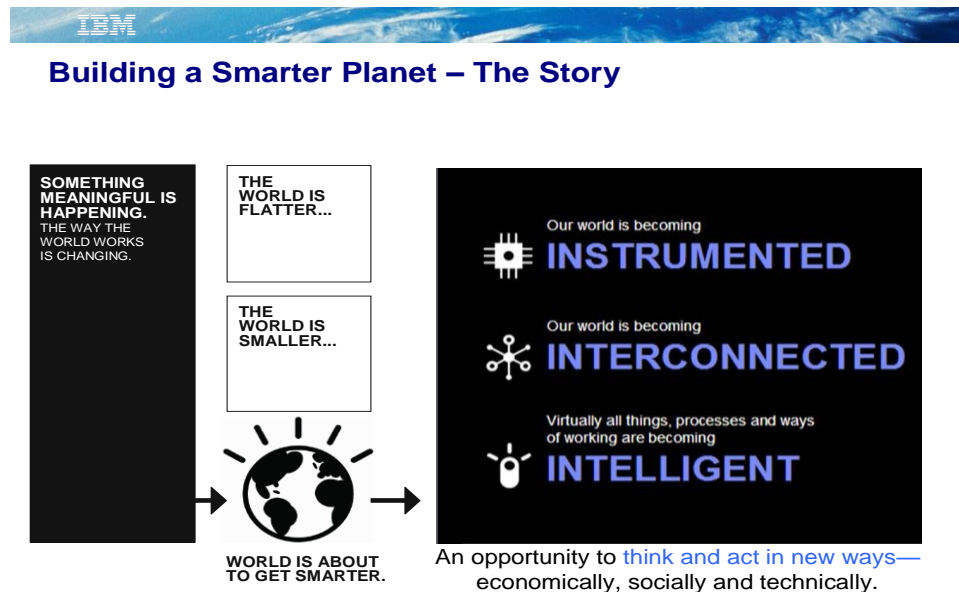
### *What Is IBM's “Smarter Planet” Agenda All About?*

In November, 2008, IBM announced a major initiative for improving the way that businesses and governments use information technology. This initiative is called “smarter planet”, and it is all about thinking and acting in new ways to make business and IT systems more efficient, productive and responsive to support the overall business.

*Smarter planet is IBM's point of view on how interconnected technologies are changing the way the world literally works. That is, the systems and processes that enable: physical goods to be developed, manufactured, bought and sold; services to be delivered; everything from people and money to oil, water and electrons to move; and billions of people to work, govern themselves and live.*

*The catalyst for this change: transformation of the world's infrastructure, which is becoming increasingly instrumented, interconnected and intelligent (see Figure 1).*

**Figure 1: IBM's Smarter Planet Initiative**



**Source: IBM Corporation – November, 2008**

According to IBM (and this view is consistent with field research conducted by *Clabby Analytics* over the past several years), the way most enterprises use information technologies is highly inefficient. Computer systems are massively underutilized — as are storage subsystems. System and program incompatibilities consistently break business process flows, leading to operational inefficiencies. And information management systems are simply not designed to handle the forthcoming explosion of data being created by digitally aware devices.

To remedy this situation, IBM has identified several issues/challenges/opportunities that should be addressed, including:

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- *Rising Cost Pressures* – business and IT assets are underutilized and difficult to manage; operational cost and complexity are reaching unsustainable and uncompetitive levels.
- *Higher Service Expectations* – increasingly savvy customers demand continuous service availability and high-quality experience across an expanding range of assets, applications, and services
- *New Risks and Threats* – unprecedented security, resiliency, and compliance challenges are created by the accelerating pace of business change, traditional infrastructure boundaries blurring and the proliferation of operating, IT, and “smart” assets that comprise the underlying infrastructure.
- *Emerging Technologies* – smarter and more adaptive technologies, such as cloud computing, virtualization, and Web 2.0, must be harnessed effectively to drive business innovation, efficiency, and responsiveness.

*Smarter planet calls for IT executives to rethink how information systems will be used in the evolving, highly instrumented, diversely interconnected business environments of the future.*

### *Smarter Planet: Four Macro Themes*

To address these challenges, and to the opportunities presented by new technologies, IBM's smarter planet initiative concentrates on four macro themes (these themes are illustrated in Figure 2). They are:

1. *New intelligence* – this theme recognizes that the amount of data worldwide is growing at an astronomical rate, and calls for the use of new approaches and tools to mine that data;
2. *Green and beyond* – identifies that there are tremendous inefficiencies in the way IT resources are being used, and calls for numerous energy efficiency and power use improvements;
3. *Smart work* – focuses on improving process flows to streamline business operations; and,
4. *Dynamic infrastructure* – calls for the implementation of a standards-based infrastructure that improves business flexibility and responsiveness while reducing infrastructure cost.

### **Figure 2 – Smarter Planet Macro Themes**

#### **NEW INTELLIGENCE**

Data exploding  
and in silos  
*I need insight...*

#### **GREEN AND BEYOND**

Limited resources  
*I need efficiency...*

#### **SMART WORK**

New business and  
process demands  
*I need to work smart...*

#### **DYNAMIC INFRASTRUCTURE**

Costly and inflexible  
infrastructure  
*I need to respond faster...*

*Source: IBM – February, 2009*

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Of these themes, the dynamic infrastructure strategy (bottom, right in Figure 2) is especially noteworthy as it serves as a cornerstone for launching all of the other smarter planet themes. This strategy for a dynamic infrastructure calls for systems/storage/network resources to be virtualized and automatically provisioned; and it calls for enterprises to implement a service orientation to how they streamline program-to-program interaction and simplify business process flows. And a good dynamic infrastructure design also ensures that information systems are designed to be highly reliable and business resilient.

### ***Why Your Organization Should Build a Dynamic Infrastructure***

As I travel around the world, it constantly astounds me to see highly-underutilized, energy inefficient, difficult to manage, insecure datacenter designs. Thousands upon thousands of IT managers have become accustomed to growing (scaling) their computer environments by adding low-cost, distributed, towered servers in small increments as their computing needs increase. These servers are often severely under-configured in order to leave headroom to process peak workloads (in fact, sometimes these servers are only configured to 10% of their total capacity). Further, the IT managers who have deployed these servers have often failed to standardize their program-to-program communications capabilities, leading to application incompatibilities and broken process flows. And finally, it is readily apparent that these environments are difficult to manage and secure (plus ensuring compliance in these environments is extremely complex). Building a dynamic infrastructure can help overcome all of these problems.

### ***Typical Problems in Many of Today's Computing Environments***

Distributed system designs are generally inefficient and highly inflexible. For instance:

- Distributed systems architectures proliferate network access points, creating tens, hundreds, or thousands of ports that need to be protected from security intrusions. Dynamic infrastructure designs (in which consolidated, virtualized, automatically provisioned systems are deployed) can greatly reduce the number of access points — reducing management complexity while mitigating associated risks;
- Systems and storage in distributed data centers are notoriously underutilized, resulting in wasted capacity (in many cases, distributed application servers run at 10-20% of total capacity in order to leave headroom for computing peak periods). Dynamic infrastructure focuses on improving utilization — leading to lower acquisition costs (IT buyers can get more computing out of existing systems), simplified management, improved availability, and so on;
- Older data center designs rely heavily on tightly-coupled programming models that are highly-inflexible and difficult to maintain, and that prevent enterprises from capitalizing on efficiencies that can be derived by adopting newer loosely-coupled “service-oriented” programming models; and,
- Managing the flow of business processes in old-style data centers requires a lot of human intervention, and is therefore labor intensive. Better, automated service management can greatly reduce human-intensive labor costs as well as human error.

***To deal with the information intensive, highly instrumented business environments of the future, IT executives need to rethink their current information systems designs and focus on creating a more dynamic infrastructure that can embrace and leverage rapid change.***

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### *The Benefits of Deploying a Dynamic Infrastructure*

In essence, the deployment of a dynamic infrastructure can help overcome all of these aforementioned architectural, management, and process flow problems — while helping IT executives lower operational and acquisition costs and improving system flexibility (enabling information systems to respond faster to changing business needs). More specifically, virtualization technologies help improve asset utilization. Automated provisioning, as well as service management, help lower IT management costs. And the use of a service oriented approach helps overcome program-to-program communications issues, leading to more efficient business process flows.

### ***Don't Forget To Build-in Business Resiliency and Security...***

As mentioned earlier, IT executives have readily and aggressively adopted virtualization technology. Many are also starting to automatically provision their information systems (provisioning enables system images to be built-up or torn-down to adjust for changing workloads). And many are also adopting SOA as a means to overcome program and data sharing incompatibilities.

***But, Clabby Analytics has also observed that many IT executives are failing to consider the bigger picture when building their dynamic infrastructures. Most are focusing on reducing operational costs through consolidation and virtualization. Most ensure that their mission critical application environments are highly available. Some are focused on improved service delivery using SOA. Some are also focused on ensuring that disaster recovery plans are in place. But few are building broad-based, complete business resiliency/security/risk management plans into their dynamic infrastructure deployments.***

The management of risk includes more than disaster recovery and high availability but also ensuring the security of information systems and data; ensuring that information systems are kept operational and available ; and ensuring that compliance requirements are met.

To ensure that a dynamic infrastructure is resilient secure, reliable, and compliant, IT executives need to put in place solid business resiliency/security/risk management plans that enable their enterprises to:

- Respond quickly and effectively to business opportunities, risk, and change;
- Deliver improved agility and effectively address and plan for risk management, security, resiliency and compliance requirements;
- Increase client and supply chain confidence and trust and meet demands for 24 x 7 availability;
- Reduce costs associated with breaches and outages; and,
- Shield the organization and indeed the company brand itself from damage resulting from diverse and evolving risks to ensure responsive delivery of services with agility and speed.

### ***How to Develop a Business Resiliency/Security/Risk Management Strategy***

In order to develop an appropriate business resiliency/security strategy, IT executives need to understand and prioritize a variety of risks faced by their respective organizations. Once a risk is identified, IT executives can do one of three things:

1. Accept the risk (and take no action);
2. Mitigate the risk (take action); or,
3. Transfer the risk (have someone else take action).

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Points one and two are self explanatory. Either ignore the risk; or build your own business resiliency/security environment. Point three provides an alternative to the do-it-yourself approach. Transferring risk involves finding a third party to provide risk management services. For instance, an organization may not have staff in place with expertise in business continuity and resiliency design and deployment. Expertise to provide this kind of design/deployment service can be supplied by several systems integrators/professional service providers.

*Example: IBM Corporation has more than 154 recovery centers around the world in 70 countries. Many IT executives feel more comfortable transferring risks associated with business continuity to IBM rather than handling risks themselves — because they know IBM recovery centers are designed to be robust and to ensure resilience in the face of a disruption. Other risks can also be transferred using such services. Managed security or resiliency services allow IT strategic planners to concentrate on strategic initiatives while leaving the day to day management and monitoring of enterprise IT availability and security configurations to staff at IBM locations.*

### *How IBM Can Help You Build a Resilient and Secure Dynamic Infrastructure*

IBM offers a comprehensive range of products and services that can help organizations build — and make business resilient — a dynamic infrastructure. In business resiliency, IBM can claim:

- 100% record for recovery of disasters declared;
- Vast experience in design and deployment of secure and resilient business systems — as well as disciplined, field-tested methodologies and technical support;
- Reliable, available, and secure systems and storage environments that provide unmatched security and business uptime while reducing risk (IBM systems and storage delivers advanced availability and security features, information and data protection, extensive global technical support, and more);
- Industry leading software, servers, storage, and operating environments based on 40 years of providing high availability solutions;
- Award-winning software, technology leadership in hardware, industry-leading services and fault-tolerant systems;
- Award winning security and privacy software and services. (IBM holds more S&P copyrights than any other company in the world);
- more than 150 global resiliency centers in 55 countries with over 212,000 disaster recovery clients. These global resiliency centers have been designed to accommodate multivendor environments, with more than 200 hardware and software vendors supported;
- On the hosted services side, IBM has more than 1,600 professionals dedicated to business continuity around the globe; and more than 3,400 information protection clients with over 24 petabytes of data under management;
- The ability to provide custom designed, business resiliency and security solutions for enterprises in specific industries in specific geographies;
- To be the only security vendor in the market with end-to-end coverage of the security foundation;
- 15,000 researchers, developers and SMEs on security initiatives;
- 3,000+ security & risk management patents;
- 200+ security customer references and 50+ published case studies;
- 40+ years of proven success securing the zSeries environment; and,
- \$1.5 Billion security spend in 2008.

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### *Dynamic Infrastructure/Business Resiliency/Security Products and Services*

To assist in building a dynamic infrastructure, IBM offers a wide range of services including the following:

- Asset Management
- Service Management
- Process Management Products
- Service Management Platforms
- Operational Management Products
- Business Application Management
- Server, Network and Device Management
- Service Provider Solutions
- Storage Management
- Mainframe Management
- Small, Medium Business Management

To help build and implement a resilient/secure business environment, IBM offers hundreds of products and services that can assist its customers in effectively managing security, availability, and compliance risks. Further, IBM provides best-practice guidance, as well as proofs-of-concept centers of excellence where IBM customers can test IBM products and learn about risk management technologies, as well as hosted "transfer-the-risk" services. What stands out most about these risk management product offerings is the level of integration, scalability and flexibility that can be found in its resiliency solutions. IBM's risk management hardware/software solutions have been designed with the concepts of continuous operations and reliability, availability, serviceability (RAS) in mind.

### ***IBM's Risk Management Solutions/Services Portfolio***

IBM's risk management solutions generally fit into four categories:

1. Global resiliency and security centers;
2. Comprehensive resiliency solutions;
3. Pervasive and preventive security solutions; and,
4. Compliance and long-term information retention (compliance).

### *Business Resiliency Services*

From a resiliency perspective, IBM offerings include:

1. *IBM Disaster Recovery Services* — designed to help recover business, infrastructure and employees in the event of a disruption;
2. *IBM Information Protection Services* — designed to protect and recover vital business information;
3. *IBM Managed Resiliency Services* — designed to provide a fault-tolerant, failure-resistant infrastructure with near-zero recovery times; and,
4. *IBM Resiliency Consulting Services* — designed to help assess, design and plan for a resilient business infrastructure.

Especially noteworthy is a new service offered by IBM to validate business continuity and resiliency for IBM customers who want to ensure that their evolving cloud computing environments are business resilient (more details on this unique service can be found at: <http://www.marketwire.com/press-release/Ibm-NYSE-IBM-923797.html>). This particular service is especially notable because *Clabby Analytics* closely covers cloud computing; resiliency is a major concern of cloud customers; and

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now IBM offers a service as well as several products designed to help its customers deploy cloud architectures and ensure cloud resilience security, availability, and compliance).

### *Security Services*

IBM's pervasive and preventive security solution strategy is based on a comprehensive security framework that includes products in the following categories:

- *People and identity*: Tivoli Identity and Access Management, Tivoli Unified Single Sign-On, Tivoli zSecure suite;
- *Data and information*: Tivoli Access Manager family, Tivoli Key Lifecycle Manager, IBM Info Management solutions;
- *Application and Process*: IBM Rational AppScan, Tivoli Security Policy Manager, Tivoli Access Manager family;
- *Network, Server and Endpoint*: IBM ISS Proventia appliances, Tivoli Security Information and Event Manager; and,
- *Security Compliance*: Tivoli Security Information and Event Manager, Tivoli Security Compliance Manager, Tivoli zSecure suite, IBM Internet Security Systems.

### *Summary Observations*

IBM's smarter planet initiative really resonates with *Clabby Analytics*. In these turbulent economic times, a smarter planet agenda provides much needed guidance for cutting IT costs while preparing information system environments to handle the rapidly expanding, data-intensive environments of the future. Smarter planet encourages us to look at how we use information technologies in new ways. It encourages us all to think about the environmental impact of IT; about how to architect more efficient business process flows; how to manage data more effectively; and how to build more flexible, service-oriented infrastructures.

IBM's strategy for a dynamic infrastructure builds on IBM's original on demand computing message announced in 2002. In 2002, IBM identified great inefficiencies in the way that computer systems were being used — and has been on a campaign ever since to educate IT managers about how to make better use of computing power. Back then, IBM called for systems to be consolidated, virtualized, and provisioned — just as dynamic infrastructure calls for today. But since 2002, systems/storage/-network infrastructure (and related service-oriented infrastructure) has become richer, more mature, more flexible, and more resilient. Accordingly, a new descriptor — dynamic infrastructure is wholly justifiable.

Most interesting in my travels around the world is the number of IT customers that I run across who are building — or have started to build — a dynamic infrastructure. These IT managers are quickly seeing real cost saving benefits of implementing a dynamic infrastructure. These cost savings come from increased systems utilization; from better systems availability (through virtualization); simplified management (through consolidation) — and they are finding other benefits (such as the ability to quickly assemble and disassemble test environments using virtualization and provisioning software).

Most distressing in my travels around the world (other than the predisposition of IT executives to purchase small towered systems in order to scale their IT environments) is the lack of proper business resiliency/security planning and the corresponding failure to implement business resiliency/security policies, procedures, and products. Business resiliency is more than just formulating a disaster recovery plan — its all about



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ensuring the proper level of security is in place, that systems and services remain operational, and that compliance requirements are met. IT executives now have a fiduciary responsibility to ensure that solid business resiliency plans are in place.

As for competitive offerings, some vendors can provide some of the products and services described in this report — but only one vendor (IBM) can provide a one-stop shop for all of the integrated hardware, software, and strategic planning and consulting, deployment and testing services needed to help reduce operational complexity, improve security, and ensure business resiliency. If your organization needs help in dynamic infrastructure deployment and/or business resiliency planning and implementation, IBM should be your first stop for business resiliency/security advice and guidance.

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