

## Changing the Paradigm for Telecomm Offerings — IBM Delivers Next Generation Network Solution

Analyst: David Reine

### Management Summary

Everywhere that people turn, they are faced with alternatives: buy an integrated package or build their own. Where do you go for supper this evening? Perhaps to a Chinese restaurant where you get to choose one from column A, one from column B, and one from column C. Or, perhaps you go to the Steakhouse where your sirloin comes pre-packaged with a baked potato and a salad. These alternatives may not seem significant; after all, the choices on the Chinese menu are straightforward. Nothing too complicated. You can handle it.

What if you were going to buy a car, however. You don't mind picking out a color or choosing between cloth and leather. However, what would the purchase of a new car be like if you had to select the chassis, the engine type, the transmission, the steering architecture, and the type of suspension? Moreover, what would happen if the car dealer then delivered your brand new car to you in 12 boxes with an instruction sheet on how to put it together? I would imagine that a lot more people would be driving older cars. The mere thought of choosing the components and then installing them would scare away 95% of the new car buyers.

The same scenario holds true in the world of Information Technology (IT). When the CIO sits down to make the next computer acquisition decision to support the enterprise for the next three years, or so, what are his options? He must decide between working with a myriad of IT providers ranging from system manufacturers to VARs, from software companies to application providers, from communications infrastructure providers to maintenance providers. Or, does that CIO seek out the one provider who has already done all of this for you and let that company do the integration and hand to you a turnkey package, ready to fly? Will it be turnkey or turkey?

When it comes to the telecommunications marketplace, the requirement is for a carrier grade open framework (CGOF) to curtail network costs, decrease network infrastructure complexity and speed up delivery of new packet-based services. IBM apparently believes in the turnkey method to provide flexible solutions to their customers. They have put together an interesting combination of telecomm IT vendors and telecomm service providers, combined them with their own platform hardware, with the result being the *BladeCenter T*, an **on-demand offering to enable dynamic scalability**. To learn more about this partnership of resources, please read on.

### IN THIS ISSUE

> A Changing Environment.....	2
> IBM's New Paradigm .....	2
> BladeCenter T Solution .....	3
> Conclusion .....	3

## A Changing Environment

A new era is arriving in the telecommunications marketplace. An era filled with the anticipation of growth from new service opportunities. Enterprises that are flexible, innovative in their product delivery, and positioned to exploit developments using an open technology will be successful.

There are also significant, new financial pressures placed upon Telecommunications Services Providers (TSPs), today. First, increased complexities in the data center are forcing TSPs to deal with the additional burden from operating expenses and capital expenses in the network. These inhibit compliance with any budget. Second, there is increased competition because of deregulation. Telecomm businesses need to be able to respond quickly to any customer demand in order to provide the services their customers want, when they want them. They need to be able to provide these electronic services whenever called upon — on-demand. We expect the same service that we get from the electric utility when we turn on a light or the water utility when we turn on a faucet. That, in turn, has forced the TSPs to look at new, imaginative sources for solutions. Simply put, the TSPs have learned that the way they are doing business with their traditional suppliers is simply too expensive. **Thus, it is critical that communications suppliers worldwide devise a way to change the existing paradigm of process acquisition and replace it with a more efficient and less expensive process implementation.**

At the same time, **Network Equipment Providers, or NEPs, are looking to form strategic alliances for the delivery of their solutions into the telecommunications space.** They have to deal with the changing economics that state that the Information Technology staff must do their jobs with a reduced headcount and processes that are more efficient. *To what goal?* To enable the consumer to have his choice of network providers with an easy transition between them, and access to not only faster networked devices than ever before, but

more of them as well.

Meanwhile, the industry has seen a convergence of legacy products into the Next Generation Network (NGN). This includes enterprise applications running over the corporate network, portal applications surfing over the Internet, voicemail and voice response over a public network (PBX), and directory applications running on a Public Switched Telephone Network (PSTN). In order to be successful, these new, converged products must comply with an open standard to allow for transportability of applications over these heterogeneous networks. As increasingly more standard products are developed, the industry has seen an interesting phenomenon. **Linux has become the operating system of choice for a new set of ISVs who are populating the telecommunications applications space.** With excellent benchmark results for compute-centric applications, Linux, along with the adaptation of high-performance compilers and improved microprocessor implementations for Linux environments, appears to provide the open source solution that telecommunications customers have been looking for. The industry is also integrating into the solution set commercial, off the shelf (COTS) components that are marking the arrival of a wide-variety of standard solutions.

## IBM's New Paradigm

In an effort to reduce the risk on telcos, IBM is not only altering their standard business procedures, they are also leading the industry charge toward totally integrated solutions in order to streamline the environment. To do this, IBM has designed an open, scalable and flexible reference architecture specifically created to enable telecommunications providers to bring new services to their customers, easier and at a lower cost. IBM calls this architecture their *Service Provider Delivery Environment (SPDE)*. SPDE defines an open delivery and management platform for services, applications, and content across multiple networks and devices. This includes IBM industry-standard platform products and

services covering eServers, a carrier grade version of Linux, and TotalStorage. In addition, this covers third party telecommunications hardware from the NEPs and software applications based upon off the shelf strategies from independent software vendors (ISVs). These extend to integrating advanced multimedia, data and content services within existing infrastructures. Service providers who implement SPDE will stand to gain from the values that it brings to their implementation. (See Exhibit 1.) By doing this, IBM enables the ISVs to dedicate themselves to improving their specialized software and not to worry about reinventing the development-implementation wheel, i.e., the IT platform. IBM has certainly taken care of that by embracing this new paradigm for the telecommunications environment with their eServer *BladeCenter T*, the newest member of the BladeCenter server family<sup>1</sup>.

### BladeCenter T Solution

Tightly integrated with Linux, BladeCenter T consists of high-volume commercial servers, storage, and networking designed into a robust, CGOF-compliant architecture enabled for telecommunications. The BladeCenter family of server products is uniquely designed to follow the performance curves of all of the leading commodity processors. This includes microprocessors from AMD and Intel, as well as IBM. BladeCenter currently supports Xeon blades as well as PowerPC blades, to handle both 32-bit and 64-bit architectures. These blades are hot plug-gable to support an on-the-air maintenance strategy and an on-demand environment, as well. BladeCenter T leverages the same hardware and software as the standard BladeCenter servers. In addition, Blade-

#### Exhibit 1 - SPDE Product Values

- Helps mitigate the risks of deploying new applications because an open platform reduces the cost of deployment vs. a proprietary one.
- Helps telcos to build business relationships with consumers and content suppliers.
- Adheres and commits to industry open standards which enables third parties to dedicate their efforts on improving their applications rather than developing supporting infrastructure.
- Allows service providers to introduce new products and programs in days/weeks rather than months.

Center T contains complete chassis redundancy to ensure continuous operation, conforming to NEBS 3 and ETSI standards for robustness. This provides telecomm service providers with the capability to implement highly available solutions for their customers. BladeCenter servers provide the infrastructure to support not only today's blades, but tomorrow's versions as well.

BladeCenter T is an integration of multiple components.

- IBM eServer Hardware,
- Linux Operating System with carrier grade enhancements,
- Systems Management software including *IBM Director* and *IBM Remote Deployment Manager*,
- High-Availability middleware (planned for future release), and
- Support Services.

#### BladeCenter T Chassis

There are both two-way (HS20) and four-way (HS40) blades available in an 8U chassis, in addition to the JS20 POWER4 Blade. BladeCenter T can support up to 80 processors in an industry-standard 84-inch rack that exists in the data center of every telco. With high-performance 64-bit tech-

<sup>1</sup> See **The Clipper Group Navigator** dated October 4, 2002, entitled *IBM BladeCenter - A Glimpse at the Future of Computing* at <http://www.clipper.com/research/TCG2002038.pdf> and **The Clipper Group Navigator** dated November 20, 2003, entitled *IBM BladeCenter 2003 - Update on Promises Made and an Eye to the Horizon* at <http://www.clipper.com/research/TCG2003063.pdf>

nology available, this density allows the data center to concentrate as much computing power as possible into your environment. BladeCenter's *Calibrated Vector Cooling* helps to protect system redundancy and provide the data center with *OnForever* reliability. A unique mid-plane design introduces flexibility into the architecture, enabling the transition to new technologies, as they become available. Constructed with reliability in mind, BladeCenter includes fault-tolerant connections with hot-swap and redundant components and light path diagnostics to assist in troubleshooting the diagnosis of failures. The T chassis has four integrated network switch modules with two of them dedicated to the integrated Gigabit Ethernet networks and the others for additional networking requirements. Foremost, BladeCenter T products have been designed to provide performance, scalability and manageability with IBM's *Director* management software and their *Remote Deployment Manager*.

The major processing component is the Blade itself, with IBM offering two Intel versions today, the HS20 dual processor and the HS40 quad processor, with the HS20 capable of supporting the 64-bit Intel *Xeon EM64T*, or *Nocona*, processor.

### ***Linux Operating System***

IBM has made a major commitment to Linux, with over 5000 employees worldwide working in Linux porting and research centers and over 4000 ISV applications currently running under Linux. **With a carrier grade version of Linux running, the Intel-based Blade is the major vehicle for application development in the telecom environment.** Its leadership position is clearly based upon the advantage it has gained as an open source development tool and the speed of execution for adopting change – while retaining the flexibility for application deployment.

### ***Systems Management Tools***

The IBM Director provides complete management of the hardware and firmware in the chassis and controls software distri-

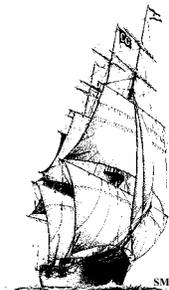
bution and upgrades for thousands of blades throughout the enterprise. It serves to help simplify and streamline all systems management by providing a single point of management, locally or remote. Director detects and reports any hardware failure for prompt problem resolution and enables the detection of new systems being added to the configuration to bring them on-line quickly.

### ***BladeCenter Alliance***

In order to accelerate the development and deployment of a total solution, IBM has established the BladeCenter Alliance to promote a new paradigm for hardware, software, and middleware suppliers. This program teaches partners about BladeCenter technology. It teaches how to add their unique core value to the finished product as an enhancement.

### **Conclusion**

Because IBM has made the necessary investments into the integrated infrastructure of BladeCenter T, solution providers can now drive new services and revenue growth. They can do this by focusing their investments and resources on developing new business models and common application-delivery systems, instead of IT infrastructure. **BladeCenter T features, such as systems management, performance, and processor density, enable simpler operation and consolidation of computing resources into more compact and affordable space.** Fully-integrated solutions cannot help but improve the time to market for every telecommunications provider. If you are the CIO of a telco and do not wish to reinvent the wheel and duplicate all of these functions yourself, take a look at BladeCenter T and save yourself both time and money.



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### ***About the Author***

***David Reine is Director, Enterprise Systems for The Clipper Group.*** Mr. Reine specializes in enterprise servers, storage, and software, strategic business solutions, and trends in open systems architectures. He joined The Clipper Group after three decades in server and storage product marketing and program management for Groupe Bull, Zenith Data Systems, and Honeywell Information Systems. Mr. Reine earned a Bachelor of Arts degree from Tufts University, and an MBA from Northeastern University.

- ***Reach David Reine via e-mail at [dave.reine@clipper.com](mailto:dave.reine@clipper.com) or at 781-235-0085 Ext. 23. (Please dial "1-23" when you hear the automated attendant.)***

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