



## Case Study

### Blue Cross Blue Shield of South Carolina: A Model of IT Efficiency

#### *Executive Summary*

Over the past ten years, *Clabby Analytics* has attended dozens upon dozens of briefings where information technology (IT) executives have explained how they utilize IT — and how they have designed their IT environments. And we have never seen an organization that operates quite like Blue Cross Blue Shield of South Carolina (BCBSSC).

In a recent briefing conducted by Stephen K. Wiggins, executive vice president and CIO of BCBSSC, we were very impressed with the company's:

- Organizational structure;
- Philosophy (IT should serve the efficient flow of business processes); and,
- Rigorous development environment;
- Unique information processing environment (a lot of IBM z/OS and a lot of Linux — a major focus on IBM System z mainframes, and a de-emphasis on Intel architecture);
- Standards compliance;
- Best practices implementation; and,
- Commitment to growing IT skills in South Carolina — and beyond.

*What impressed us most about BCBSSC is that this company understands that information systems should serve the efficient flow of business processes — and, secondarily, that this company is platform-agnostic (it matches workloads to the systems environments best suited to run those workloads).*

In this *Case Study*, *Clabby Analytics* takes a closer look at how BCBSSC is structured; how its information systems environment works; how it adheres to standards; how it implements best practices — and how it is growing its professional skill sets to ensure that it can meet business growth requirements both now and in the future.

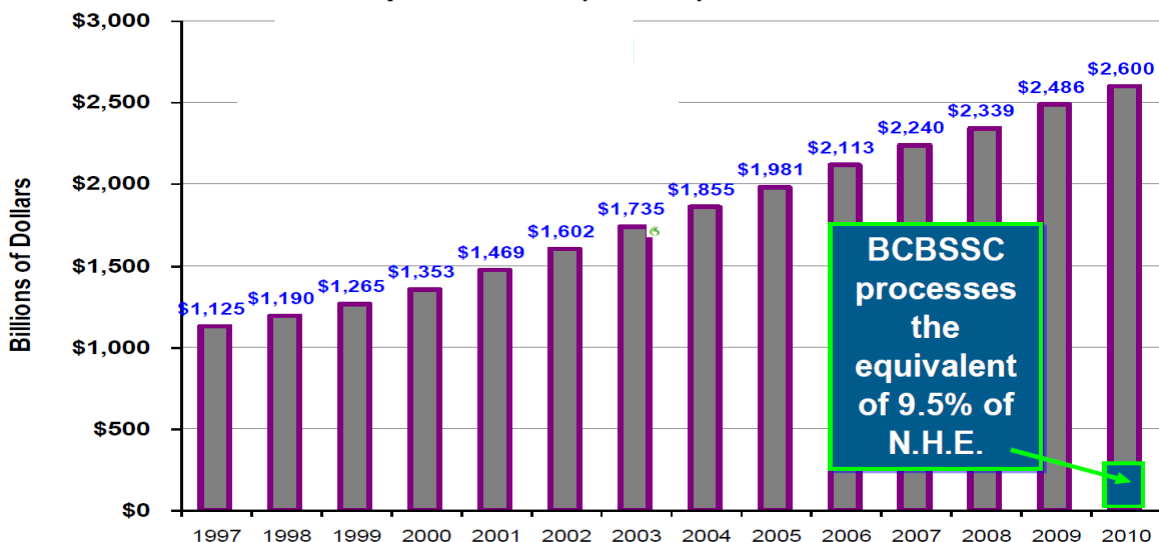
#### *Background*

To succinctly describe what BCBSSC does: the company is in the business of health care claims administration.

BCBSSC has huge processing scale — driving approximately \$247 billion in annual claims payout. To understand how big BCBSSC is, consider that the national healthcare expenditure in the United States is about \$2.6 trillion dollars (\$2,600,000,000,000). BCBSSC processing represents 9.5% of this number (\$247,000,000,000) as illustrated in Figure 1 — next page).

**Figure 1 — BCBSSC Processing Impact Expressed as a Percentage of NHE**

**National Healthcare Expenditures (N.H.E.)**



SOURCE: www.cms.gov; Projected data from CMS is used for 2010 N.H.E.

As for company size, BCBSSC has 11,700 employees spread across 17 U.S. states. Its customer base is approximately 66 million individuals. And the company has 40+ subsidiaries and affiliates, many of which are involved in more than health care claims administration.

And to truly understand how important IT is to this company, it is necessary to consider the sheer size of this company’s processing load. BCBSSC has grown from processing around 100 million claims per year to over 825 million claims last year — illustrating why information systems are vital to this company’s current and future growth. It should also be noted that BCBSSC needs its information systems architecture to be able to scale efficiently — and it needs to be able to find people to develop new applications and to manage ongoing growth.

*The remainder of this report examines how BCBSSC has organized itself to manage this growth. We consider:*

1. *The relationship between executive management, line of business executives, and the information technology organization;*
2. *The skills needed to support this company’s process flows and growth plans;*
3. *The company’s information system design (and choices/trade-offs they make);*
4. *How the company adheres to standards and implements best practices; and,*
5. *How the company will support future growth by working with organizations to support the growth of IT skills.*

**Philosophy and Organizational Structure**

When considering all of the interviews and all of the presentations that we have participated in over the past decade we have rarely seen a company with as close an alignment between business executives and IT executives as we have seen at BCBSSC. And we believe that this alignment starts with some of the company’s basic philosophies.

## BCBSSC: A Model of IT Efficiency

### *BCBSSC Understands the Roles of Executives and the Role of IT*

The way that Steve Wiggins describes the relationship between business executive management and IT management is: “IT management runs the business while business managers lead the business”. In short: business executives articulate requirements and run the business — while IT executives automate and streamline the flow of processes, build applications, and deploy and manage systems environments. When IT needs clarification or arbitration, business executives provide that guidance.

The reason we like this division of labor is that we believe that business managers should focus on running the business — and that business managers should not become involved in “specking” (specifying) how IT does its job. All too often we see business executives and line of business (LOB) personnel getting involved in IT decisions (specking the independent software applications they believe they should use, or dictating the systems architecture that they want their applications run upon). We believe that properly trained IT executives are better qualified to make these typed of decisions because it is the IT department that understands processor characteristics, system design and service level requirements — as well as database and infrastructure requirements.

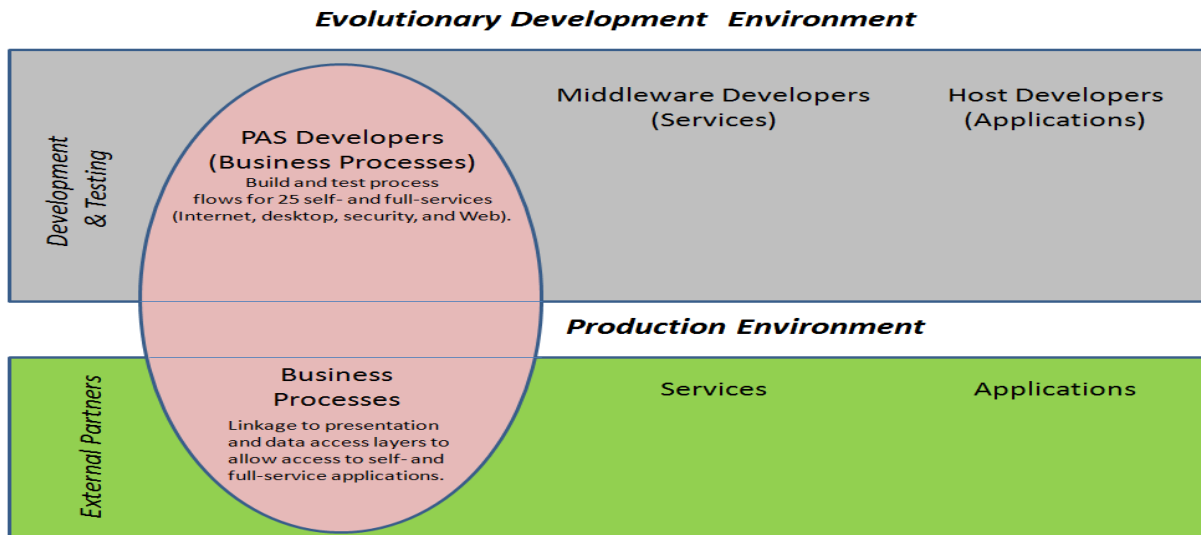
*In our opinion, enterprises that align in a fashion similar to BCBSSC are highly likely to find that they can eliminate a lot of political infighting and related inefficiencies — and instead focus on getting real work done.*

### *The Role of Business Process*

For more than a decade *Clabby Analytics* has argued that the purpose of information systems is to serve process flow. By streamlining process flow enterprises can reduce their sales, general, and administrative expenses (leading to greatly improved profitability) — while at the same time improving customer service.

BCBSSC fully understands the importance of efficient process flow and the role of information systems and supporting that flow as illustrated in Figure 2.

**Figure 2 — Business Process is Integral in Development and Production**



Source: Derived from a BCBSSC Slide Presentation — June, 2011

## BCBSSC: A Model of IT Efficiency

Figure 2 shows how BCBSSC has organized its IT organization to build processes that drive over services and interact with applications.

***The net result of the way that BCBSSC is organized is that business processes drive IT — IT does not force IT conventions and restraints on users and external partners.***

### *The System Agnostic Philosophy*

The other element of BCBSSC's philosophy/approach that we like is related to its system platform choices. BCBSSC understands that no single microprocessor does all jobs well — and deploys its workloads on multiple different platforms. The company knows that microprocessors are different, that system designs are different (for instance, blades, racks, and scale-up towers); and that quality of service differs by processor type and system design characteristics.

Of interest, BCBSSC tends to prefer the IBM System z mainframe architecture over other platform choices. And this makes perfect sense because most of the applications that BCBSSC runs are complex, transaction intensive applications (such as claims processing) that benefit from the huge I/O subsystem and the tight coupling with the database that mainframe architecture offers. It also makes sense because mainframes are the industry's most secure commercial computing environment (having achieved EAL level 5 — a testing level that no other server environment has yet matched); mainframes offer the industry's most advanced virtualization facilities (allowing for high levels of system utilization and providing a constantly refreshed, high-availability resource pool for failover situations); and the industry's most advanced management facilities.

***We note that over the past two years BCBSSC has removed a thousand Intel-based servers, re-hosting those applications on Linux on the mainframe. While the industry press and mainframe competitors are claiming that “the mainframe is dead”, BCBSSC is disproving that notion. And one of the primary drivers for this situation is that BCBSSC believes that the mainframe scales more easily than alternative systems, and that mainframe quality-of-service levels are consistently higher than competing architectures.***

### ***The BCBSSC Development Environment: Meet the Borg***

In the previous section we describe some of the philosophies that drive BCBSSC. And we provided a high-level view of how BCBSSC organizes its IT resources to support business-driven goals, objectives, and processes. In this section we take a closer look at how BCBSSC has organized its development organization.

#### *The Borg*

Star Trek science fiction fans are familiar with a fictional alien civilization known as “the Borg”. The Borg civilization traveled from solar system to solar system defeating civilization after civilization with advanced technology — and then assimilating the survivors into the Borg way of life. This way of life entailed that all Borg march to the same tune, think the same thoughts, and perform the duties assigned to them. In some respects, BCBSSC's IT department is like the Borg. Here's why:

- Members of BCBSSC's IT organization need to buy into a common vision of how the company is structured and how IT can serve business goals and requirements;

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- Individualism (in the context of application development) is not allowed. Members of the development organization know their role, know the developmental methodology, and have a clear understanding of their deliverables. (Note: this is not to say that innovation is not allowed at BCBSSC — what we are saying is that there is a very disciplined developmental and testing methodology [and some unique tools] used by BCBSSC — and that all members of development must buy into this approach);
- The Borg were very efficient when executing their tasks; and,
- The Borg were very successful — rarely meeting defeat.

*What really jumped out at us as BCBSSC explained its approach to development is that their whole focus is on effectiveness and efficiency. The company wants its developmental approach to be followed — and it uses some very unique tools (including “code generators” that automatically produce programming code) along with IBM’s Rational Development Environment — in order to make its developers even more efficient. By using this approach, the company is able to produce and test millions of lines of code — and is able to respond to business requirements faster than any other organization we’ve ever seen.*

### *Systems/Platform Selection at BCBS*

We were highly entertained when Mr. Wiggins introduce the topic of platform selection at BCBSSC. He led this discussion by imploring IBM representatives in attendance to “put Windows on your zBX [zEnterprise BladeCenter Extension] x86 blades”. To understand why we thought this was so funny it is necessary to understand a product offering that IBM announced and released in phases starting in August, 2010.

IBM's zEnterprise system is a highly integrated mainframe/blade server environment that allows Power Systems and System x (x86) blades to be tightly coupled with the mainframe. The benefits in doing this are many, including:

1. Better governance of all types of systems within a given information systems environment;
2. Cross-platform management all the way from the application, database, middleware and virtualization layers down to the firmware level;
3. Stack integration (so common middleware, databases, and applications can work together in unison — creating performance efficiencies); and,
4. The potential for huge operational cost savings because this architecture does not require as much networking equipment as a distributed computing architecture; it does not require as much management labor; it burns less energy; it creates smaller footprint in the data center (saving space); and it makes better use of storage.

*According to IBM, the primary reasons to buy zEnterprise is that it provides multiplatform integration, management integration, and stack integration. For more information on IBM’s zEnterprise environment, please see our report on zEnterprise/zBX/Unified Resource Manager at: [http://www.clabbyanalytics.com/uploads/System\\_z\\_Opinion\\_FinalFinalFinal.pdf](http://www.clabbyanalytics.com/uploads/System_z_Opinion_FinalFinalFinal.pdf).*

Now, back to the reason that we found Mr. Wiggins request so funny. IBM’s zEnterprise supports z/OS and Linux on the mainframe; AIX (Unix) on Power System blades; and Linux on x86 servers. Most large enterprises that we have spoken to run Microsoft Windows as well as Linux on their enterprise servers. And, when zEnterprise was

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announced, we pointed this out to IBM's chief executive in charge of both hardware and software environments. So, we chuckled when a very large customer echoed our same request.

***Just for the record, IBM has issued a statement of direction to provide support to run Microsoft Windows on System x blades within the zBX by the end of Q4, 2011.***

### *Counter to the x86 Multi-core Movement — Mainframes Are Dominant at BCBSSC*

As we travel around the world we talked to dozens-upon-dozens of IT executives who believe that they can run all of their workloads on Intel's new generation of x86-based multi-core processors. Our belief is that no processor runs all jobs well, and that IT buyers should focus on the characteristics of their workloads — and match those workloads to processor characteristics, systems designs, and the QoS that a system can deliver.

As we stated earlier, BCBSSC is platform agnostic — they believe (like we do) in running the right workload on the right machine. Having said this however, we must note that most workloads at BCBSSC never left the IBM System z mainframe environment, a decision that was made after careful analysis of the future Total Cost of Ownership way back in 1993. And the primary reason for this was that mainframes can run a very transaction-oriented operating environment known as z/OS — and then add that today mainframes can also run an industry-standard open systems operating environment known as Linux (a modern, general purpose operating environment that runs numerous application environments such as Java — and that runs a wealth of off-the-shelf independent software vendor [ISV] applications).

What is happening at the BCBSSC is that the mainframe has developed two personalities: 1) that of a heavy I/O complex transaction processor; and, 2) that of a very large, well integrated Linux consolidation server. What BCBSSC is finding is that:

1. They can scale better on the mainframe than on any other system architecture;
2. It is easier to secure scale up mainframes than it is to secure hundreds or thousands of distributed servers;
3. System z quality-of-service (QOS) when it comes to reliability and availability is much higher than any other computing architecture in the industry (mainframes offer the longest meantime between failure of any computing architecture — often measured in decades); and,
4. Due to advanced management tools and utilities — an automated management facilities — mainframes are easier to manage than distributed computing environments (and mainframes require fewer people to manage them).

***Counter to the market trend to try and run all workloads on x86 architecture, mainframes have been and will continue to be the platform-of-choice at BCBSSC. And we believe that by taking this approach BCBSSC will be able to scale much more efficiently than organizations that are not using mainframes — and that the company will also be able to operate or efficiently and at a far lower cost than companies attempting to run the same types of workloads on a traditional distributed computing architecture.***

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### *Standards Compliance and Best Practices*

Mr. Wiggins described the company’s adherence to standards and compliance requirements as a natural progression based upon the best practices that BCBSSC has developed. In Figure 3, BCBSSC maps its best practices to various standards and compliance standards — and shows how its progress was evaluated, as well as provides a maturity level score for each standard.

***Figure 3 — Compliance Driven by Best Practices***

BEST PRACTICE FRAME WORK	EVALUATION METHOD	MATURITY LEVEL SCORE	
		ITIL	Self-Assessment
CMMI	External Assessment	Level 2 – Managed: Existing practices are retained under stress, the statuses of work products and the delivery of services are visible to management at predefined points, and work products are reviewed with stakeholders and controlled.	
CoBit	Self-Assessment	High Level Objectives	Detail Level Objectives
	Internal:	100%	97%
	External (*)	100%	96%
	(*) External Assessments are based on the number of CoBit Control Objectives considered in external audits because our reviews have found only 79% of the High Level Objectives and 82% of the Detail objectives are found in external audits. Therefore, a 100% rating on External Audits would be based on the 79% and 82% objectives respectively.		
ISO 9000	External Assessment	Certified	
SOX	External Assessment	Passed	
EAMM	Self-Assessment	Level 5: Indicated BCBSSC demonstrates the highest level of vitality through its current use of a combination of structured process, templates, and organizational fluidity.	

*Source: BCBSSC — June, 2011*

What is important to note about this chart is that BCBSSC contends that by simply implementing the best practices possible the company was able to achieve full Sarbanes Oxley (SOX — a healthcare compliance requirement) certification — and the company was also able to achieve various levels of certification in a variety of other standards activities. Except for SOX, the company did not focus on achieving certification in these other areas — but, by adapting a variety of best practices into their holistic approach to IT administrative and operational processes, the company was able to show internal and external auditors that it was indeed compliant with other standards.

### ***Going Forward: Skill Sets Are of Critical Importance***

BCBSSC’s IT organization has grown at least 13% per annum since 1993 and expects to continue this growth over the next several years. And this implies that they build a systems architecture that can support this kind of growth — and that they have the skill sets needed to continue to articulate processes, develop applications, and manage systems. But the data that BCBSSC is looking at from a variety of domestic sources shows that there are approximately 400,000 people working in IT in the United States today, and that 900,000 more will be needed in the near future.

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What this means to BCBSSC is that it must make every effort to grow its base of IT experts in order to ensure that it has the human resources needed for growth— or it must consider off shoring work to other counties (which BCBSSC very definitely doesn't want to do!).

So, in proactive fashion, it has become a partner with the nonprofit organization that is focused on building IT skills in South Carolina (along with several other South Carolina-based businesses and local colleges and universities) — as well as throughout the rest the United States. This new organization is known as IT-ology (more information on IT-ology can be found at [www.IT-ology.org](http://www.IT-ology.org)).

### *Summary Observations*

BCBSSC stands out in our minds as a unique, rigorous, and progressive organization. The company's organizational structure separates business management (the hierarchy) from IT management (the matrix). This lets business executives do what they do best (run the company and service customers); and it lets IT management do what it does best (build efficient and effective information systems; build applications that service the company's process flows; and deal with capacity planning as the company grows).

As we look at the company's philosophy we found that BCBSSC is in lockstep with our perspectives on the primary role of IT is to serve business process flow (not the other way around); and that workloads should drive system choices (no one microprocessor does all jobs well).

As for BCBSSC's development environment, we have never seen anything quite like it. Developers write code to service business requirements — and code generators expand that code — making programmers very productive, while BCBSSC business practices ensure that projects don't fail.

We also like the way that BCBSSC focused on creating its own best practices, and then mapped its best practices to standards such as ITIL. We've seen organizations turned upside down just to achieve a certain standard recognition. We found BCBSSC's approach — just do the best job possible and then map it to standards requirements — to be refreshing.

Finally, we too are very concerned about the growth (or lack thereof) of IT skills in the United States. IT-ology plans to sponsor an open industry meeting in September, 2011. We plan to be there.

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