

# THE AUTONOMIC ENTERPRISE

EXTRACTED FROM JACK SHAW'S FORTHCOMING BOOK, THE AUTONOMIC ENTERPRISE™

It's five o'clock in the afternoon at Mt. Hood Beverage in Portland, Oregon, the largest distributor of beer and wine in the Pacific Northwest — time to start picking orders for the next morning's deliveries. As the drivers return from their routes, every detail of today's deliveries is stored in their handheld computer. When they download this information into Mt. Hood's computer system, things start happening.

First, the accounting system reconciles the deliveries to the payments the drivers collected. Next, the system calculates each customer's needs for the next day based on the delivery and on-hand inventory information stored in the handhelds. Third, the warehouse management system determines the optimal sequence for picking every case of each order to go out the next day.

These orders then are grouped by "form factor," that is, the size and shape of each case. This way, like cases can ship on the same pallets. This increases load stability and reduces breakage. The orders are automatically sequenced to be loaded into the trucks in reverse order of the optimal delivery route. That way, drivers don't have to move one customer's order out of the way to get at another's.

Warehouse workers pick the orders and drive the forklifts to load the delivery trucks. But no one needs to figure out what product goes to which customers. No one has to guess the best sequence to pick the orders. And no one has to decide how to load the trucks or what routes they should take.

Dick Lytle, Mt. Hood's president, says that their systems let their driver/salespeople make 15 percent more calls than they could in the past. Their revenues have increased to reflect that. He goes on to say, "Some distributors aren't stepping up to technology. Those are the ones we're buying!"

Mt. Hood Beverage's warehouse management process is an example of an autonomic system at work. Autonomic systems are systems that are essentially self-managing. However, an important aspect of autonomic systems is that they allow for outside intervention whenever it is necessary or simply desirable.

Industry leaders like Dell Computer, Wal-Mart, General Electric, Johnson & Johnson, Procter & Gamble, and Coca-Cola are moving quickly to put autonomic business processes in place. To do this well requires that businesses' underlying information technology infrastructure also be self-managing. It's no surprise, then, that every major technology provider from IBM to Microsoft, from Sun to Oracle, from HP to Unisys has a major autonomic computing initiative underway.

Our autonomic nervous system is perhaps the original example of an autonomic system. But there are many other kinds of autonomic systems. Many of the simplest are what we can call autonomic devices.

A dishwasher is an example of an autonomic device. When I was a child, we had no dishwasher in our house. Well, perhaps I should clarify that. As the oldest of six children, I was the dishwasher. However, by the time I was a teenager, much to my delight, my parents had purchased a dishwasher.

As we all know, a dishwasher washes, rinses, and dries dishes. Some, in fact, are now quite sophisticated. They heat the water to the proper temperature first and can even decide how long to run the wash cycle by determining how dirty the dishes are. All of this is done without human intervention being required. Nonetheless, if we wish, we can intervene by putting in a cup or spoon after the cycle has started or by pulling out a dish to rinse by hand rather than waiting for the cycle to end.

As a small boy, I delighted in the aroma of baking bread when I visited my grandmother's house. The high point was when she pulled the warm loaf of bread out of the oven for us to enjoy. I think that is part of the reason I enjoyed my grandmother's fresh-baked bread so much was that we so rarely had it at home. With six kids going in six different directions, even a stay-at-home mom like mine had little time to bake bread.

Think about it. She'd have to mix the dough, set it aside to rise, and then come back to knead it. Then she'd have to let it rise again and knead it again. Next she'd have to check back and make sure it had raised enough before putting it in the oven. Finally she'd have to watch it



carefully while it was baking to make sure it baked completely without burning. Who had time for all that? Certainly not my mother — which explains why, like so many of my generation, I grew up on a steady diet of Wonder Bread and Parker House Brown 'N' Serve rolls.

In my home now though, I bake fresh bread regularly. This is not because I have any more time than my harried mother did nor certainly any greater devotion to my family. The difference is, I have an autonomic device — a bread machine. All I do is dump a pre-mixed package of ingredients into the machine, add water, and press a few buttons. Three hours later we have a perfectly baked hot loaf of bread.

But again, if I so choose, I can intervene into the process. For example, if I'm making banana bread, I can program the bread-maker to let me know when to add nuts at the last minute to top the loaf.

Far more sophisticated autonomic systems are the autopilots on military and commercial aircraft. In fact, what we commonly call the "autopilot" is referred to in correct aerospace engineering terminology as the "autonomic flight control system".

Autonomic systems such as the autonomic nervous system, autonomic devices, and even autonomic flight control systems have been with us for years now. They've improved many aspects of our lives. But our businesses have long lacked any similar such systems to manage their day-to-day activities. And so we waste valuable time and resources simply maintaining the status quo in our organizations.

Until the advent of the Internet and the technologies it spawned, we could do little more. However, now it's become clear that the Internet and e-business, rather than being ends in themselves, are actually steps on the path to autonomic business processes.

Driven by the demands of e-Commerce and e-business, over the past several years sophisticated technologies have evolved. These enable us to design and implement self-managing, or autonomic, business processes and the systems to support them. Recently, innovative organizations have implemented autonomic processes, with astounding results.

Like Mt. Hood Beverage, they've improved service while cutting costs. And, they've made huge gains in market share and profits. Some companies are actively implementing autonomic processes throughout their business. As they succeed in doing so, the next few years will see the rise of a new kind of organization — the Autonomic Enterprise™. □

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