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/// VOLUME 3 ISSUE 3

FULL SPEED AHEAD!

In the race for first place, know where you're going, how you're getting there, and what technologies, processes, and tools are equipped for the journey.

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Deadline Closing In? Follow the Sun.

International handoffs to extreme teams can shrink project life cycles.

By Mike Sarokin, EDS, an HP company

It's a typical problem with atypical circumstances: A software product is due in three weeks. Even with engineers logging extra hours, a best-case estimate is 330 hours to project completion—or close to eight weeks. How does an enterprise make the impossible happen? The concept is simple enough: Follow the sun. Or rather, the work follows the sun.

Globalization has made the world smaller, and just as it's always 5 p.m. somewhere, it's 8 a.m. somewhere else. Besides its main office in San

Francisco, the challenged company also has data offices in Brussels and Sydney. Like a well-oiled machine, when the San Francisco team calls it a day, they shunt the project to the Sydney team, who—because their work day is just beginning—picks up where their California

colleagues left off. By 4 p.m. Sydney time, the work is packaged and sent at the speed of light to the Brussels office, where the team is likely still sipping their first cups of coffee. Nine hours later, the project is back in San Francisco in time for a morning hand-off discussion to update the team there.

The project never sits idle. With no one required to put in punishing hours, the “extreme” team accomplishes a full 24 hours work on the platform instead of the usual eight. Performance testing is conducted during development, and bugs are worked out even as final coding is ongoing.

The result of following the sun? The product makes deadline.

A NEW PARADIGM

The follow the sun (FTS) model is not entirely new: It's an evolutionary descendant of the three-shift factory strategy. As a project management tool, it came together in the late 1990s, refined by practice and available technologies rather than by initial design. Follow the sun turns the old three-shift factory model on its ear and takes the work to the employees during prime working hours, wherever and whenever that happens to be. Call centers, data centers, and manufacturing plants have been employing this method for years to provide production and customer support around the clock. But taken a step further, it's just as applicable in today's global enterprises where networks and collaborative tools already take advantage of the 24-hour day.

The most fundamental definition of the process requires that operations occur in at least two sites separated by time zones, with a high dependency between the sites. FTS is set up with the objective of reducing duration.

Departments and teams that extend around the world can be an efficient way to speed up completion of important work, such as software development. Currently, taking advantage of multiple time zones to accelerate operations is more often reserved as a last-chance solution to complete a delayed project on time, rather than as the initial plan.

But following the sun is really a proactive tool

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and strategy that can speed project completion without incurring undue costs. In fact, it can save substantially on operating costs when properly implemented. Procter & Gamble began using FTS management processes as early as 2002 in inventory and production management, and has reportedly saved about \$125 million in project costs.

EDS utilized the FTS approach when a large e-commerce software development project was falling behind schedule. We tested in one corner of the globe and repaired bugs in another, and both our success and the cohesiveness were amazing—a 25 percent reduction in project delivery time. Work was well choreographed for overlapping time zones. International conference calls and instant messaging across thousands of miles really were just as effective as pinging a colleague

on another floor. The experience convinced us that FTS is a natural first call for software development. Every phase of the system's life cycle can benefit.

The software industry is indeed the best arena for implementation and execution since information-based work is the easiest commodity to transport electronically. However, other industries have successfully implemented FTS or large elements of FTS with success— aerospace engineering and design, supply chain management, service centers, and other such fields. Furthermore, most every modern business has information-based operations that can either benefit from the strictly defined application of FTS or from incorporating aspects of the FTS model to improve efficiency, such as call center operations.



Time Zone 1—Brussels

- Standard working day from 8 a.m. to 5 p.m. (6 a.m. to 3 p.m. GMT)
- Two teams: development (coding) and a test team (unit test)

Time Zone 2—San Francisco

- Standard working day from 8 a.m. to 5 p.m. (3 p.m. to 12 a.m. GMT)
- Three teams: development (coding), a test team (unit test), and a performance test team

Time Zone 3—Sydney

- Standard working day from 8 a.m. to 5 p.m. (10 p.m. to 7 a.m. GMT)
- Three teams: a production support team that fixes bugs during testing, a building team to produce the daily build, and an integration test team to continually test the application as it progresses

THE PERFECT MATCH

Consider following the sun for software development. A typical software cycle consists of five distinct phases: requirements, design, code, test, and implementation. Since these processes typically overlap, FTS could improve delivery speed in each phase, though it can vary depending on project complexity, team makeup, team location, and cost constraints.

The requirements phase can speed visual prototyping as one team takes the initial screen design and creates a functional prototype. Then a team in another time zone can build the prototype based on the work of onsite colleagues. A third team in another zone could join in if the amount of work proves greater than the two teams can manage.

A planned overlap between shifts allows time for the onsite team to discuss the prototype with the building team. As an added benefit, there are now two teams monitoring progress, and the simultaneous engineering by utilizing multiple time zones can significantly speed up this phase. To control costs, the research team might be located where expenses are lower.

In the design phase, one geographic team designs while another team in a different location reviews and provides feedback. The teams overlap their workday by an hour to brainstorm solutions and conduct the handover process.

During these coding, testing, and implementation phases, the project travels the expanses of the globe, but gets finished in literally half the amount of time, without sacrificing quality. FTS methods greatly improve the speed of delivery and effectiveness of projects.

Thus, software is developed in three geographies. The developer creates the code, but it is fully tested by someone else in another time zone. Bugs are repaired by the production support team rather than the original developer—freeing the build team to continue production and speeding up the process. This also provides performance testing during, rather than at the end of the development life cycle. As the production support team repairs errors, they become more familiar with the application, accelerating knowledge transfer during implementation.

Benefits of Follow the Sun in Software Development

- Integration testing begins early, thus reducing the overall integration test phase and speeding up project delivery.
- Software developers construct and test code, but don't spend time making fixes. Concentrated construction and unit testing improve the developers' productivity.
- Developers get immediate feedback when errors are found; a good quality-control process identifies the source of repeated errors.
- Development across geographies increases the speed of delivery.
- The infrastructure is not stressed by all the development and testing taking place at the same time in a single location.
- As the production support team repairs errors, they become more familiar with the application, thus speeding up knowledge transfer during implementation.

BEYOND SOFTWARE DEVELOPMENT

Many knowledge-based processes can potentially benefit from adapting the FTS approach in full or in part. For instance, in order to support operations in 76 countries, General Electric Medical Systems established its Asia-Pacific regional headquarters in Queensland, Australia, selecting Brisbane as the location for its remote diagnostics call center—one of four existing centers that are critical to the company's strategic 24-hour FTS system.

GKN Aerospace, based in the United Kingdom, may be the first to apply FTS management to aerospace engineering. Serving customers in North and South America, Australia, Asia Pacific, and Europe, their work on aerostructures, propulsion systems and transparencies, plus a number of specialties, are performed around the clock and around the globe, by GKN engineers. Their implementation mirrors that of companies that

adapted FTS for software development purposes.

But FTS doesn't halt with engineering either. Salesforce.com is establishing a network operations center in Singapore to implement FTS monitoring of the company's data centers in North America and Singapore. To support this, it is investing in additional facilities and headcount at its Asia-Pacific headquarters.

Meanwhile, Oracle has joined companies such as Cisco, General Electric, and Wal-Mart in implementing FTS for software development, data center operations, and supply chain management. It is here that elements of FTS—methods for transferring complex workloads of varying types among company offices—can increase speed and efficiency in more traditional projects beyond the simple handoff of operations among time zones.

THE CHALLENGE OF EXECUTION

As interconnected as the world is—what plugged-in executive doesn't have the local weather and time for London, Berlin, Hong Kong, and Dubai pre-set in his or her BlackBerry or iPhone?—FTS poses more challenges for certain operations. Most finance and banking applications already use at least a quasi-FTS approach—after

all, there's always a market open somewhere. And the benefits grow exponentially with technological developments. However, the actual movement of money in FTS can provoke its own challenges.

For instance, one American banking firm incorporating elements of FTS discovered that complying with Sarbanes-Oxley led to complex inter-company billing and cross-border taxation. Further, data privacy, security, and other issues complicated operations beyond the benefits of speed and efficiency.

There are also other considerations. Even for industries best suited for FTS, issues having less to do with the execution and more to do with the human element still exist. When the human resources director of an American technology firm reviewed the holiday calendar affecting its staff in more than a dozen European nations, he came to the remarkable conclusion that there are only 50 regular workdays available for synchronized meetings. That's not to say that these difficulties can't be overcome; one must simply be aware that the world is not the 24/7 ideal we imagine on paper.

HOW TO MAKE IT WORK

Whether a company is implementing a complete FTS management system or incorporating its best practices where they fit, it must clearly define and communicate roles and responsibilities, and assign a single authority for the project direction and concept-to-delivery architecture. The organization must ensure that tracking and evaluation activities are implemented, and make project managers aware of the roadblocks that can crop up between teams from different time zones. The map doesn't always reflect the terrain, and no battle plan survives contact with reality. Both the plan and managers must be adaptable to the reality on the ground.

Because of this, it's critical that the project be easily broken down into units or subsystems. Responsibility for each step must be explicit. A communications infrastructure must be in place, including the physical network, videoconference and teleconference facilities, and collaboration services such as team portals. In our own FTS projects at EDS, we use SharePoint portals, teleconferences,





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and instant messaging as effective communication mechanisms between team members. We have experimented with incorporating agile methods as Scrum methodology, an incremental process of software development, though coordinating small active teams on sprints across multiple locations is challenging.

Probably most important is the understanding that everyone on the project must operate as a single team even if team members are a world away. Ideally, steps should be taken to increase not only the project knowledge of team members in different countries, but also the cultural understanding of their counterparts in far away places. Even among people sharing a common language, misunderstandings of directives, terms, and common expressions are possible.

Follow the sun methods can speed up both efficiency and project time when properly

implemented, planned, and monitored. A company has to be proactive and organize FTS activities from the project's onset to get the maximum from implementation, though broader elements can be adapted to benefit other round-the-clock operations where full FTS management is not feasible or productive. Above all, a company must be realistic about expectations.

And oh, by the way, plan the end-of-project party in the beginning. The challenge? Getting a global team to celebrate at the same time. The traditional popping of champagne corks to mark the completion of a major project is so much sweeter when you know that, at that exact same moment, corks are being popped in Paris, Taiwan, and Chicago. |s|

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