

Responding to Customer-Specific Requirements

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For most growing software companies, the scenario is all too familiar: after weeks of waiting for it "any day now," that next big customer deal finally closes. That's the good news. The bad news is that, in order to close the deal, your company committed to the development of some product extensions, custom applications, customer-branded user interface or other new work. The customer wants it delivered "yesterday" and you're under pressure from your board to recognize the revenue in the current quarter. You have to respond quickly but you don't have the in-house resources unless you cannibalize your core R&D team.

Your options appear limited. It takes too long to find short term contractors, then train them on your proprietary technologies and development methodology. Outsourcing the entire project to a traditional service provider is fraught with risk and won't meet your schedule. The customer, with the associated cash inflow, is always king so you yank people off other projects and do it in house. Another satisfied customer. And, thanks to the disruption, another delay in the time-to-market of your next-generation product.

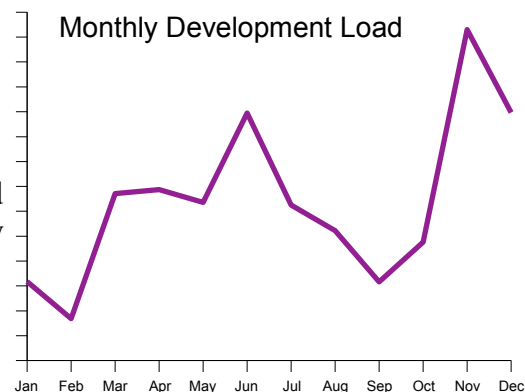
Fortunately, a new approach has been successfully used by 3Com, Brix Networks, Bridgewater Systems and others to solve this management dilemma. This paper explores the issue of managing fluctuating demand for customer-specific development and introduces the bitHeads **ProductStream™** partnership model.

The Customer-Driven Yo-Yo Effect

Many communications, network, wireless and enterprise software products must be configured, integrated and/or customized to be deployed into a specific end-customer's environment. New adapters and plug-ins may need to be built to integrate a product with new devices or legacy customer provisioning and billing systems. Customer-specific applications or user interface configurations may be required. Existing products may need to be adapted for new operating platforms. Whether the requirement is a one-off customer-specific development or the accelerated delivery of what will become a standard feature in your product, the strain on your organization is the same: a short term burst of activity is required by a team of software professionals who know your products and underlying technologies, can work effectively using a strong development methodology, and can represent your company professionally in interactions with your end customers.

If the flow of customer-driven development work was steady, you could scale up your in-house professional services capability to efficiently manage it. But the timing of new customer wins can be unpredictable at best. Since every customer has different needs, the flow of customer-driven new development work is even more unpredictable. To provide each project with the expertise and effort it requires, the number of people contributing and their level of effort each month can vary wildly. The following chart, based on real data, shows the monthly variation in people count and person-hours over the course of a year. In this example, the number of ongoing projects in any given month varies between 2 and 5, employing the efforts of between 5 and 11 different people, totaling between 150 and over 1300 person-hours per month.

This typical yo-yo pattern of customer-driven software development makes planning and responding extremely difficult for small or growing companies. You need satisfied reference customers right now but you also need to keep your core R&D efforts on track if you're to achieve a leadership position in your market over the long term.



Keeping a few current customers happy is critical but you also need to deliver on your grander product vision. You need to find a way to respond quickly to short term, fluctuating demand for customer-driven

work while providing continuity and support for your ongoing R&D initiatives.

Never Enough In-House Staff

Your in-house staff are best qualified for the task but they're already busy with too many "priority 1" strategic projects. Drawing key resources and management attention away from core R&D work on your next generation products forever constrains you to be a competitive laggard. And over-hiring enough permanent employees to handle the peak load is a profit-killer that most growing companies simply can't afford.

The Scramble for Contract Employees and Consultants

One option is to manage the entire project internally and hire individual subcontractors to augment your in-house team for the duration of the project. With the fluctuations in demand and uncertainty of timing of new projects, you end up in an endless cycle of hiring and laying off contractors. If your projects require knowledge of your products and underlying proprietary technologies, contractors spend more time ramping up than providing productive contribution to the project.

Traditional Outsourcing: One-off Small Projects Get Lost in Translation

It might be appealing to outsource the entire project, particularly to India or another low cost region where the per diem rates for programmers are much lower than what you pay local contractors. When carefully managed, traditional outsourcing has proven to be cost-effective for some large software projects and ongoing maintenance work. But off-shoring has a dismal track record for rapid turnaround small projects that require a lot of communication between the outsourcer and software vendor. The situation is even more challenging if the outsourcer must interact directly with your end customer.

Customizations and other new development work required to deliver your solution to a specific customer are often characterized by fluid requirements and unanticipated technical and usability challenges. Consequently, tightly-coupled communication, effective collaboration and an intimate understanding of the customer domain are key ingredients for success. Effective communication and collaboration in this context requires closely located team members with a common cultural experience and level of customer awareness.

For small projects that must be delivered to your end customers in a timely manner, traditional outsourcing is fraught with risk. You need a

crack team of reliable, professional people that can be assembled very quickly, deliver reliably and represent your company professionally.

ProductStream: Matching Development Resources with Your Fluctuating Project Demand

bitHeads has pioneered a new outsourcing partnership model that has proven successful for cost-effectively satisfying the fluctuating demand for customer-driven projects. The uniqueness of the model is the investment by bitHeads to maintain a pool of permanent employees that can be assigned to specific projects as required. bitHeads manages a large enough portfolio of work for multiple software vendors that it can juggle its employee base to leverage the knowledge and experience gained on your earlier projects. For a given software vendor, it means having a virtual department of highly skilled technical staff that you can call on as required. You get the benefits of continuity from having the same resources working on multiple projects, without committing to full time employment and the related costs of management and overhead.

Unlike the contractors that churn through staffing companies and typical outsourcers, bitHeads resources are primarily top performing permanent employees. bitHeads invests heavily in employee professional development and an outstanding work environment to attract and retain the best talent. The result of this ongoing investment has been an employee turnover rate of less than 3% and numerous awards, including recognition by Mediacorp as one of Canada's Top 100 Employers in 2007.

Reliable Delivery, Lower Average Cost

The experience of ProductStream customers is that the average cost of delivering customer-driven features is less than the costs associated with managing a high churn rate of contractors, less than the loaded cost of maintaining in-house capacity to deal with the anticipated project peaks and much less than the direct and opportunity costs of distracting your core R&D team.

In addition to highly satisfied end customers, whose expectations for quality and on-time delivery are exceeded, and the strategic impact on your business of keeping your core R&D team focused, the overall result can be an average annual cost saving of 30-50% to deliver all customer-driven projects. Some of the savings drivers include:

- Reduction in management effort to recruit, train and oversee contractors;
- Reduction in ramp-up time and related costs;
- Overhead costs avoidance for work performed at bitHeads' facilities; and

- Productivity advantage due to continuity of staff from project to project.

Through the continuity of reassigning some of the same people on subsequent projects and the ongoing investment in professional development, ProductStream customers enjoy a continuous improvement in productivity and related cost reduction over time. The model has been proven on hundreds of successful projects during the past 12 years. bitHeads' track record of reliable on-time and within-budget delivery is illustrated with the following examples.

Brix Networks

Brix Networks provides solutions that allow network operators to proactively monitor the quality and performance of their IP-based voice, video, and data services. The BrixWorx solution includes a software engine that provisions and manages a network of test and measurement appliances and a web-based network monitoring and management portal. According to David Kaufman, Director of Custom Solutions at Brix. "Rapid growth in our core business, coupled with the emerging demand for portal customization, made it difficult to justify building and staffing a dedicated, in-house team to perform this work, and we didn't want to distract our R&D group from its focus on our primary product development efforts. On the other hand, the standard outsourcing models wouldn't work very well for us because the custom portal development work requires intimate knowledge of our BrixWorx correlation and analysis software engine, expertise in PERL, and a high degree of interaction with our staff."

Brix turned to bitHeads for help. "bitHeads has a unique approach," continued Kaufman. "Unlike most outsourcers, bitHeads invested in a real relationship with us and have become a trusted and flexible extension of our in-house team. Once we sign a new customer for a custom portal, bitHeads often has a qualified team of PERL and BrixWorx developers working on it the very next day. bitHeads has a great track record of delivering on time and they have proven to be a valuable partner for us."

Bridgewater Systems

Bridgewater Systems develops advanced subscriber-centric policy management software that provides IP-based services providers with a unified view of their subscribers across all access technologies. More than 40 global service providers, including Verizon Wireless, Sprint PCS, Bell Mobility, and Virgin Mobile USA, currently deploy Bridgewater Systems solutions.

Bridgewater selected bitHeads to help them accelerate the development of their core products and to quickly customize the end-user interface for specific service provider clients. Operating as a

natural extension of Bridgewater staff, the ProductStream teams worked with a wide variety of technologies to help in the development of specialized, scalable software. bitHeads continues to provide reliable resources to meet the needs of Bridgewater's globally growing business.

Nakina Systems

Nakina Systems delivers network management solutions that provide network operators with a generic framework to monitor and control the many elements on which their networks rely, including elements coming from multiple vendors (e.g. Lucent, Alcatel, Nortel). Nakina's clients often require new adapters be developed to cover all of their network elements. They often also require customization of the interface to fit with their existing systems and allow flow-through of their subscriber provisioning.

To improve their ability to respond quickly to the needs of new customers, Nakina turned to bitHeads for help. As they are called upon to respond to new Nakina clients, bitHeads rapidly deploys ProductStream teams to build new adapters and customized OS interfaces. In each case, the ProductStream team has quickly learned the proprietary technologies, standards and operations of each of those clients, as well as worked with a wide variety of standard technologies. bitHeads has developed adapters for over 30 network elements and continues to expand that set to deal with new and updated equipment. The quick and reliable delivery of this service has allowed Nakina to continue the quick growth of their customer base.

Atreus Systems (now Sonus Networks)

Atreus Systems provides IP service provisioning software. Their “one platform – many services” solutions help service providers bundle, sell, and activate services for their customers. The Atreus xAuthority system includes a workflow engine, off-the-shelf IP provisioning modules, customer self-care portals, back-office integration, and a product catalog.

To rapidly respond to growing demand, Atreus selected bitHeads to build customized, branded provisioning applications for a variety of their key customers, including Ericsson, BroadSoft, Sylanro, Connected PC Backup, and RadialPoint. Applications included:

- Flexible provisioning for consumer and business VoIP service bundles, special features, and converged voice and data services, including Hosted PBX, Mobile PBX, Business Trunking, IP Centrex, and Residential Broadband;
- Subscription, delivery, and management of IP security services such as Firewall, anti-virus, anti-spyware, anti-spam, and parental controls; and

- PC backup services, providing data backup and management for small to medium size companies through a web-based interface.

Vaultus Mobile Technologies

Boston based Vaultus Mobile Technologies provides an award-winning mobile application development studio and operating platform that enables the rapid development of mobile applications that access enterprise systems. bitHeads was selected by Vaultus to develop the user interface for a mobile application for Vaultus' end customer that will allow BlackBerry users to access stock trading services. Under the partnership, bitHeads deployed a team of BlackBerry application usability experts, designers, and quality assurance professionals that are working as an extension to in-house staff at Vaultus to design and implement the user interface of stock trading applications that will run on the Vaultus Mobile Application Platform.

“bitHeads’ unique expertise in mobile application usability and product development for the BlackBerry is a great addition to our team,” states David Birnbach, President and CEO of Boston-based Vaultus. “The secure Vaultus platform, our professional staff to integrate the back-end, and the bitHeads team to deliver an optimized user interface makes a powerful combination that accelerates and de-risks the roll-out of this critical product for our customer. We use off-shore providers for some development work; however, for this type of project, we needed a local partner like bitHeads with specialized skill and experience.”

Summary

For software companies that must respond quickly to the fluctuating demands of their new customers' requirements for development work to customize, extend or integrate their products, the traditional approach has been to deploy core R&D team members to get the projects done reliably. All too often, the victim of this approach is a series of delays in the release of next generation products that are critical to the creation of the company's long term shareholder value. Attempts to use temporary contractors and traditional outsourcers typically result in delays, cost overruns, management distraction and dissatisfied end-customers.

bitHeads' proven ProductStream approach is a true partnership model that provides reliable, elastic development capacity. As a virtual extension to your in-house R&D team, bitHeads provides the resources and continuity to enable you to reliably and cost-effectively respond to your customers while maintaining your long term R&D focus.

About bitHeads

bitHeads is one of the largest software product development outsourcers in North America and is growing at over 150% annually. bitHeads is the product-building partner that has helped 3Com, Adscape Media (now Google), Cryptologic, IBM, Mitel, RIM and many others get award-winning software products and games to market faster. bitHeads' unique approach provides rapid deployment product development teams, a proven methodology for building new products faster and a partnership model based on a commitment to successful delivery. Millions of people around the globe use mobile applications, Voice over IP systems, games and other software products that have been built by bitHeads.

For more information, contact your bitHeads representative:

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