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Working with your software supplier - Making the Most of the Beta Product

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"beta test, v

To voluntarily entrust one's data, one's livelihood and one's sanity to hardware or software intended to destroy all three. In earlier days, virgins were used to beta test volcanoes"

(Origin Unknown)

The changing face of beta tests

Why do we do them? , the short answer is because we can. The software business makes conducting beta tests relatively easy compared to other industries. The product is portable, easily delivered, especially now with Internet distribution, easily updated , has little "real value" and can be set to expire after a given period.

What motivates a software company to conduct beta tests? The answer to this question used to be simple. Companies conducted beta tests to find out two things. Did we design the product in such a way that it meets a real customer need and therefore makes business sense, and did we build it well enough that it will perform reliably in a variety of real world environments?

To the horror of the engineering staff beta products are also frequently used to close sales deals by demonstrating the future availability of that one all important new feature. The temptation to use a beta product in production to overcome a shortcoming of the released version is sometimes also difficult to avoid.

Why do testers participate? There are perhaps a greater variety of motivations at work here.

- Early adopters who like to see new products or versions
- Potential new users who want to determine if the product will in fact meet their needs
- Current users who want to make sure that the new version integrates smoothly i.e. their motivation is strictly self defense
- Current users who are counting on new features being delivered in the new version
- Reluctant users who must plan an upgrade due to "push" factors, for example a new operating system or data base version

Given the variety of motivations you might expect that finding beta sites that will invest in testing a new product or version would not be difficult.

The New Reality

When planning our beta tests we target a certain number of customers sites depending on the nature of the product i.e. is it a new product, a new version with major enhancements, or a new version with minor enhancements. One of the evaluation criteria after the test is what participation rate did we see, in other words what percentage of the testers who signed up actually performed a significant amount of testing. We determine this by assessing how far they proceeded against the plan submitted prior to the start of the beta test.

Despite the variety of motivations for participating in a beta, it has become increasingly difficult to obtain a high participation rate. Four or five years ago the rate was typically 60% - 70%. In recent years it has been steadily declining to less than 30% in some cases.

A number of factors are at work here. The biggest, I believe, is the fact that organizations simply do not have the resources to invest significant amounts of time testing beta products. The belt tightening that has taken place in the late eighties and early nineties has left most IT shops with little spare capacity for these kind of activities.

Another factor is that most shops now use a wide variety of software. server based, PC based, networking, data base management, communications, office productivity etc. etc. It simply is not possible to devote a lot of time to the beta testing of each new version of each product.

In addition the organizational responsibility for each of these may not be centralized. The availability of beta versions may not be known.

Dealing With the New Reality

The kind of feedback received during beta testing is vital. If the ability of some customers to participate is decreasing then a new way must be found to assess the potential success or failure of your product prior to release. Why not just increase the number of sites, accept the lower participation rate, and end up at the same place?

This approach may work for new versions with minor enhancements. However, for significantly new versions or brand new products there may be requirement to provide some form of product training prior to the beta test to simulate as closely as possible the production environment. Product training involves either the movement of people or the development of very sophisticated tutorial based learning. The first is expensive, the second difficult to do with a not yet fully stabilized product.

At Cognos we tried several different but complimentary approaches to the problem.

1.   Application Testing

Application Testing is used to help assess the ease of upgrade to a new version of an existing product. Working with Customers we brought their applications in house and automated the running of them. When a new version is ready for testing we compile their application code and run the application. Differences in output from previous tests are investigated and result in either product bugs or needed additions to the documentation .

This process internalizes and automates one type of feedback that comes from a beta test, that being the ease of upgrade to the new version. Unlike a beta test we can run the application tests repeatedly at any point in the development process. This type of testing involves considerable investment to learn and automate the application. If used for a somewhat mature product, which will still undergo regular enhancement for many years, the investment will be paid back over and over.

2.   Face to Face Beta Tests

As mentioned, many customers simply do not have the capacity in their IT shops to devote a lot of time to beta testing. To compress the time required, and obtain as much feedback as possible, we started bringing customers to our site or sending technical staff to visit the customer. Before the visit a plan is created and goals for the session established. Our technical staff then do whatever preparatory steps are possible and assist the customer in using the new product in their environment or against their application in our environment. This cuts down dramatically the time required to learn the new product or version and allows us to see first hand the results of the test. A measurement of the product's success is the extent to which we can meet the predetermined goals and, of course, the number and severity of problems found.

This process has one further benefit if done as early as possible in the testing cycle. Where a customer can devote some time in their own shop to a beta test then the face to face visit gets them up to speed quickly and makes the subsequent testing they do on their own that much more productive and informative.

This does require substantially more investment in travel expenses but has proven to be a very effective way of getting first hand feedback on the product. It is limited however by the number of staff available to work with the customer and how often you can convince them to board an airplane.

3. **Internet Distribution**

Neither application testing or face to face beta testing eliminates the need to do a more conventional beta test i.e. shipping the product out to a fairly large number of sites. This step is still necessary to cover off the variety of environments in which the product is being used. In fact this can be broadened and enhanced by providing the product for download from an FTP site and doing little or no screening of who is downloading it. The sheer volume involved will result in a fairly broad based test which is likely to cover a wide range of environments but not to the depth of the other methods.

It is necessary of course to have the proper expiry dates in place. This method can also have some sales impact by exposing a much higher number of potential customers to a new product.

4. Professional Testers

Another approach tried with mixed success was the use of professional testers. In our case we hired consultants familiar with the general product area, and specifically with some of the competing products in the same market. We designed for the consultants a specific task to be completed in a fixed time period. Our measurements center around the extent to which each was able to deliver a functioning application as designed. They were provided with training using early versions of the introductory course. One or more of our technical staff were assigned to help them with product concepts and, when problems were found, to take over the reporting and documenting of the bugs. Daily review sessions were held with the development team so they could get a User's reaction first hand.

This type of testing can have a fairly high price tag (in our case 5 consultants for several weeks each) compared to "free" beta sites. In this instance we brought these professionals in too early in the process. The product had not yet achieved a reasonable level of stability. The result was therefore a significant number of bugs and an assessment by each consultant as to how well the product will do in the marketplace. The assessment lacked the proof i.e. a completed task in the time allotted. The next time this approach is tried we will establish minimum product criteria that must be met before the professionals are involved.

An additional and relatively new process is the ***Release Advisory Team***.

Release Advisory Team

In a situation where a brand new product is under development , or perhaps a radically new version of an existing product, it is important to get customer feedback much earlier in the development cycle than the above methods provide. Ideally this feedback can be obtained as features are being conceptualized and designed prior to implementation.

To do this we used a process called the **Release Advisory Team**.

The team is made up of the following.

1. One or more key strategic customers whose use of the product is representative of the high end of the customer base, in other words of those customers to whom the product is key to their business success. They should be chosen with the following in mind. 'If we can satisfy this customer then we have also satisfied a large percentage of our target market.'

2. Key Architects and Engineers from within our development teams.

3. A business manager from within the both organizations who is responsible for making sure the product meets the customer's requirements.

4. Technical contacts from both organizations who will deal with the daily exchange of technical information and who will carry out the required testing and reporting.

The Release Advisory Team Selection

The nomination of potential customer participants is usually done by business or account managers who are both familiar with the customer base and are aware of the aims of the new product or version. In addition to the strategic importance of the product to the customer other factors are taken into consideration such as:

- Is their use of the product representative of the target customer base at large?
- Are they known for using "best practices" ?
- Will the local account manager also invest in this special relationship?
- Is the customer likely to commit sufficient resources for the long term?
- Does our development schedule roughly match the customer's strategic plan?

Potential customer participants are short listed and approached through their local account manager to assess their interest. Negotiations with the interested customers will outline the benefits of the relationship as well as the commitments required. Non-disclosure agreements are put in place since both sides will be privy to the others strategic plans.

Other members of the team are put in place based on their product responsibilities, technical skills and business responsibilities.

The R.A.T. Process

The key characteristics of this customer/supplier relationship is a free exchange of information that otherwise might not be disclosed and customer supplied input very early in the product cycle.

In our case we had the customer brief the entire development team on their business and how the product in question contributes to their success. This gave the developers the background necessary to understand issues that would be raised later in the process.

Initial meetings will focus on the schedule of deliverables, usually aligned around the provision of documents and product components, and will follow through the actual implementation and testing of the new product. What makes this process different from a traditional beta test is that the customer is provided with detailed requirements and design documents as they are produced and are asked to comment on the suitability of these to their own needs. The line items in a schedule therefore look something like:

1. Initial product high level requirements provided to customer
2. Feedback received on high level requirements
3. Status meeting to discuss outstanding issues on requirements
4. Detailed design for features 1-5 provided
5. Feedback received on features 1-5
6. Conference call to discuss outstanding issues on features 1-5
7. Customer provides test application
8. Migration utility development finished
9. Cognos tests migration utility against application
10. Migration utility provide to customer for further assessment
11. Report provided on migration utility acceptability
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The schedule continues then through each major milestone of the project.

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End of project.

Testing Activity

To speed up the testing cycle, and to focus the customer's attention on non-trivial issues, it was important to receive from the customer portions of the application to be tested by us before the product is turned over to the R.A.T. customer for testing. What seemed to work well was to have our customer prioritize components of the application so we could test the most important pieces first. For example the part of the application dealing with daily transactions could be looked at first. Testing of the annual maintenance portion of the application could be done later. The testing could be carried out as components of the product were delivered internally. Obvious issues such as lack of stability, incorrect implementation or poor performance could be identified and rectified before turnover.

The customer then could focus on suitability to their specific environment.

Results

This process has been used through one complete product cycle with several different customers. We can therefore make some observations on its effectiveness.

One technique that provided valuable and detailed feedback was walkthroughs of the proposed implementation of a feature. A mock-up of the feature detailing the user interface was stepped through even though the actual processing behind the interface was not yet implemented. This allowed us to make changes before going too far down the implementation path. The level of feedback ranged from very detailed, for example "the information messages are not detailed enough" or "the resulting interface looks like a windows application but does not behave as one in these instances" to very high level, for example "we will require a terminal deployment option for some time to come". Comments on the intuitiveness and usability of the features were common.

These sessions were sometimes observed by staff responsible for the online or printed documentation and by those developing material for training courses. They would obtain early feedback on what product areas required special handling in the help, manuals or in the classroom. Sessions specifically for this kind of feedback were also scheduled.

Another interested observer to these sessions was the marketing staff. Their interest was to make sure that the product behavior was consistent with the proposed market positioning.

The information received in these sessions resulted in one or more of the following:

- immediate changes to the designs discussed and a follow-up walkthrough or design paper review
- changes agreed upon to be scheduled for a subsequent product version
- suggested changes that were rejected with explanations
- additions to the HELP system, printed documentation or training course
- research begun into options and relative cost of implementation
- refinement to the marketing strategy for product positioning or target market segment

Additional information was received via testing carried out internally prior to product turnover and by customer testing after product turnover.

Product Distribution

At times during the project changes are being implemented at a very fast pace. This can lead to a situation where the customer is testing with a somewhat obsolete product version. The problem will have to be re-tested with the latest version before problems are investigated or resolved.

In the case of the Axiant product, builds take place daily. As part of the build process a small, automated acceptance package is run to make sure problems have not been introduced in any major area.

This process requires more coordination between the parties. The advantage to daily builds is that changes from one build to the next are relatively few, compared to a weekly or bimonthly build cycle. A new problem introduced in a given build can more easily be traced back through the source control system to find the offending code.

To take advantage of the high build frequency new versions can be made available via an FTP site so shipping time is eliminated and feedback is more immediate.

Benefits to the software supplier

The goal of all pre-release testing is to make sure that the software developer has an accurate picture of product suitability in order to make the correct release decisions.

The R.A.T. process contributes to this knowledge by:

- Providing overall product assessments by key customers representative of the target market
- Providing a high volume of feedback on specific issues such as bugs, usability issues etc.
- Taking a product through a complete integration process confirming the product's ability to meet its requirements
- Utilizing the companion products, documentation, help systems and training courses thereby highlighting their strengths and weaknesses and clarifying what other support will be required
- When the entire process is successful it provides reference sites that can be used in early sales situations and marketing campaigns.

Benefits to the customer of participation

Earlier in this paper I outlined some of the motivations for customers to participate in beta tests. In exchange for the time and resource commitment, the R.A.T. process addresses several of those for the large scale user, particularly if the product being tested is strategic to their business. As a participant you are:

- Able to determine if the upgrade path is smooth and therefore plan and schedule a move to the released version with some confidence
- Provide direct input into features and their implementation making sure they meet your particular needs
- Provide direct input into the suitability of the product in your specific environment for example conformance with other products such as data base versions present and future
- Gain access to significant expertise which can result in improved use of the product
- Influence the collateral material such as documentation and training

Summary

The beta testing process, through necessity, has become more varied and more difficult to carry out. Face to face beta tests , automated application testing, use of the Internet, and involving professional testers are some of the ways a traditional beta test can be augmented.

Our experience with early and direct customer participation in the review of a product early in the development cycle has been positive. In addition to the wealth of technical detail obtained through this process we ended up with both an objective and subjective assessment of the design and development process. The **objective** assessment is whether or not the customer completed their plan as detailed at the beginning of the process.

The **subjective** assessment is the direct feedback on product suitability from the R.A.T. If you have chosen well this information will represent a large segment of your customer or prospect base. Suggestions or objections can be communicated directly to the development team without the usual middle men.

Valuable information was also obtained for the documentation, training and marketing staff.

As a component of our pre-release testing effort we will continue using the R.A.T. process for future significant new products or versions. Combined with other methods outlined earlier it helps round out our understanding of both the product suitability to a given market and its readiness from a quality standpoint.