

From Yellow Stickies to the World-Wide Web: The Evolution of Problem Tracking at the University of Houston

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ABSTRACT

In 1990, IT Technology Support Services (TSS) was formed by combining several IT support departments. Cases were distributed to the four or five support people by the simple expedient of putting sticky notes on their office doors. A support person would return from an office call to find his/her office door covered in sticky notes. Missing cases, lost phone numbers and angry customers were common events.

With an enrollment of 30,000 students and rising, something had to give.

A variety of solutions were tried. First we had a VMS based system called Tracker. Stalker was next which proved to be much more flexible and paved the way to our current setup. More than anything else, using Stalker helped us begin to train ourselves to use an electronic tracking tool.

Finally, we purchased Remedy for both helpdesk and account management use. Many internal and external departments have partnered with TSS to use the system. Now integrated with AskShasta our customers are able to submit their own cases via the web. This allows customer problems to enter the department's workflow directly, which greatly speeds time to resolution and provides the best service possible while reducing the need for new FTEs.

Categories and Subject Descriptors

K.6.3 [Management of Computing and Information Systems]: Software Management—*software process*.

General Terms: Management, Human Factors

Keywords: Remedy, RightNowTechnologies, self-service, web, e-mail, FileMaker Pro, helpdesk, collaboration, notification system, tracking, console, burnout

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1. PAIN AND SUFFERING

Imagine walking into work on a Monday and finding your office door papered with yellow sticky notes. Each note had a name and, hopefully, a phone number. Sometimes they might even contain a rather cryptic problem description, though as anyone who's been in tech support for more than a week knows, "Professor Jones" is often all the description required (there's always a Professor Jones). Staffers would collect the notes, unconsciously organizing them by priority, though most would have had trouble defining the specific methodology. Often, "I can do these five in two hours" was enough to put them first. The office door was cleared, the staffer started to work and by the time they'd plowed through at least half of their morning's workload, guess what? The door was covered once again.

This is what life was like for TSS in the late 1980s and early '90s. We had phone mail, but it was new and too few of our customers wanted to use it. The campus was roughly half Macintosh and half PC (dumb terminals still sat on many desks across campus), with Windows just coming in and that mysterious beast called the World Wide Web just around the corner. We were supporting IP and Telnet on DOS and were still providing ISP services to a university community just beginning to become addicted to being online. CMS, VM, VMS and UNIX coexisted, after a fashion, and we had 40,000 customers beating a path to our doors. The only saving grace was that some colleges and departments had their own, limited, internal technical support. Even then, we were the court of last resort. Or at least the court of "the tech guy's at lunch."

Staff suffered. Customer service suffered. Customers suffered most of all. The authors vividly remember begging management for additional positions or technology aids only to be asked to "prove it." Notes from our doctors detailing exhaustion, hypertension and associated stress-related ailments weren't enough. No, management wanted numbers. They wanted to know actual details. How many calls per staffer per day? What is the time to resolution? What are the major topics the calls relate to? What percentages of the calls could be assigned to each of those major topics? Staff realized that if they spent enough time tracking their workload to acquire the necessary numbers, there would be no numbers because nothing else would get done.

Catch-22 was a good book, but it's a very stressful way of life.

2. LIGHT AT THE END OF THE TUNNEL

2.1 Tracker

Few of us remember much about Tracker. It was the first electronic tracking system (that we were aware of) in IT. Built in-house with no funding, it lived on a VMS system. Probably written in DCL, it had a command line interface and no reporting capabilities. It did, however, offer something never seen before: the ability to see other staffers' workloads and easily take over a case when necessary. Tracker was underutilized and ill-suited to the needs of the department, but it did serve to launch the next step in the process.

2.2 Stalker

Stalker was that next step in our search for problem reporting Nirvana. As with Tracker before it, no funding for software or equipment means that records are virtually non-existent. It was approximately 1992 when the department's senior staffer produced Stalker. Created with FileMaker Pro on a Macintosh, Stalker was a necessary step forward from Tracker and a definite move in the right direction. It was a very simple design and very easy to make design changes to. The creator kept it to herself for a short time to work out the initial bugs (and being a talented and conscientious worker, she got most of them) but then opened it for the rest of us. Living on a "found" machine in her office, Stalker was set to change the way we did business. Assuming any of us would use it.

Looking back, it seems almost unbelievable that there was resistance to using the tool. It was clean, efficient and oh, so necessary. Still, for all that, though we knew we were drowning and knew we needed to do something, there was some initial resistance. Change is difficult, even positive change and we'd been in siege mode for so long, it was difficult to break out of that. Slowly, though, the benefits made themselves known and one by one we began to see the light. Then, one day, the yellow stickies all but disappeared as the two secretaries/helpdesk workers began inputting calls into Stalker. That was a revelation to us all. Our world had suddenly changed and things would never be the same. Thank goodness.

3. REMEDY

3.1 The Learning Curve

Stalker was an intermediate solution. It showed us that we really could get along without little bits of sticky paper in our lives and that the boxes on our desks could be used for more than reading USENET and replicating customer problems. Now that we had experience with an electronic problem tracking system, we could articulate our needs for a more comprehensive one. Even more than that, we could now provide the necessary supporting documentation to management to justify spending money for a full-featured commercial system.

In 1996, after a lengthy process of researching problem tracking systems, we settled on Action Request System made by Remedy Corporation, also known as the Remedy system. As part of the solution, we invested in an application called Helpdesk which sits on top of the Action Request System architecture. It had all of the capabilities of Stalker and much more.

The Remedy system came with a notification system that introduced the possibilities of building a better communication

system between employees and customers. The email engine built within the architecture could actually receive customer email and input those messages directly into Remedy, creating cases without human intervention. It was the first time we grasped that problems can be reported and tracked by more than just a telephone system.

The system also had better reporting capabilities. We were able to quickly report on open tickets, pending tickets, and resolved tickets by person in a given time-frame. Remedy opened our eyes to reporting and tracking possibilities we'd never conceived of while working with Tracker and Stalker.

In keeping with industry trends moving away from client server applications toward web based applications, Remedy offered us a relatively simple and reliable method of providing system access from the web.

With the overwhelming need to use this product, the initial year was spent on learning, trial and errors, enhancements, and ultimately growth in all aspects. The funding for this product presented a real challenge for the Support Center. As a University, funds are apportioned to each department based on services geared toward assisting students, staff and faculty. Although our justification was to keep track of issues reported to us by students, staff, and faculty, the budget was just enough to purchase the product. The rest had to be done on our own.

The talent to run a server or a database was non-existent in our department. Therefore, an in-house team had to be formulated which consisted of Remedy Administrator(s), a Database Administrator, and a Server Administrator. The database and server administrators were selected from other areas in IT to help support the product. This began the first of a series of formal cooperative efforts between IT departments and employees. The Remedy Administrator(s) were selected from within the Support Center department. Once the server and database administrators completed the installation and setup, the design and implementation of the Remedy system was in the hands of the Remedy Administrator(s). No formal training was given for months, due to lack of budget, before the system was on its feet. Many hours were spent learning the system inside and out for the first year.

Then, when that first administrator moved on from the university, we were left with another steep learning curve, only this time on a production system. A new administrator was put in place who essentially kept things from blowing up until training could be budgeted. Two administrators were finally sent to training classes and one of them is still administering the system today.

3.2 Progress

As we realized the potential of the system, we started to formulate plans to enhance the system over the next two years. We coordinated with the Enterprise Systems department to pull in people information from the authoritative systems to populate Remedy and keep it up-to-date. The Support Center Helpdesk now has basic demographic information on all current faculty, staff, and students that is updated in Remedy on a nightly basis.

We also converted all functionalities held within the account management system known as Gamma to the Remedy system. Currently, the Remedy system, calling Perl and Oracle scripts, manages the creation and expiration of userids, aliases, and

account transactions. We also developed a web-interface for resetting passwords. The script was designed to authenticate the user and pull information from Remedy in real-time mode to display all accounts the customer currently has. Customers can then select the accounts that they want to reset the passwords for.

Another major plan in relation to the account management system was to develop processes to integrate with WebCT Vista, an on-line educational service for faculty and students. Remedy is able to create userids and determine which student belongs in which course, format the data, and pass it to the WebCT Vista server for uploading.

We have also automated processes whereby customers can submit problems to the Remedy system via e-mail and web. Remedy also has a one-way integration setup with the RightNow or AskShasta product. Recently, there have been plans to upgrade the integration to a two-way communication process.

The Remedy client is also available on the web with secure login connections. Now, Helpdesk staff members can access Remedy from any browser to handle outstanding requests from the field or just to look up information from the comfort of their home.

Bringing Remedy into TSS has resulted in increased productivity, improved communications (both internally and between customers and employees), and increased organization of processes, procedures, and documentation. The age of the sticky note is over.

4. SELF-SERVICE

With the integration of the Remedy system into our business processes, TSS sat ready to take the next step down the road of customer support. Instead of waiting for our customers to come to us with problems, it was time to start delivering the information and tools our customers need up front so they can resolve their own problems without having to wait on hold or for an email. Also, given that we have a non-traditional student body, a great many of our students aren't able to contact us during regular working hours since they work, too. Self-service seemed the most logical service to offer to our customers.

4.1 RightNowTechnology: AskShasta

About 20 minutes after the web became public knowledge, someone, somewhere put up the first web based Frequently Asked Questions list. From that moment, things just got worse. While the idea of a web based FAQ continued to be a great one, like Tracker, it wasn't enough. The questions and answers were there, but they weren't always easy to search and tracking actual usage was a pipe dream. Updating these lists was a problem in an organization where web servers were kept tightly secured. That's assuming anyone was tracking the lists at all. Again, static FAQs, like Tracker, are better than nothing, but not by much.

Also, with different departments offering different, but related services to our students, a student could go mad trying to get all the answers they need in a given day. A recent article stated that 70% of the University of Houston's students are first generation college students. That translates to a steep learning curve just to learn how to go to college, much less what it means to take on the academic load itself.

AskShasta (the UH "brand name" for our implementation of the software – Shasta is the UH mascot's name) opened a new world for the University of Houston. For the first time, various frequently asked question lists were gathered together and put into a form that made search and retrieval simple, intuitive and easy to track. Built on RightNow Technologies' eService Center, AskShasta is a collaboration between a variety of departments, most of which focus entirely on students and prospective students. The initial partnership was between TSS, the Office of Admissions, Academic Records, the Office of Scholarships and Financial Aid and UHOnCall, the university's general information resource. The idea was born, indirectly, out of the Student Friendliness Committee which had been charged with finding ways to improve the way the university interacts with students.

When first coming to the site, customers are presented with the most commonly used answers. Every time an answer is accessed its "score" is increased. If the answer is rated by a customer, its score is affected either positively or negatively depending on the rating given. If the answer isn't on the first page, customers are able to easily search for the answers to their questions and are also presented with related answers based on content as well as what other customers have used. If no answer is found, customers can email a question. This creates an "incident" in AskShasta which is automatically assigned either by the customer self-selecting the proper department or, if no department is selected, the incident is automatically assigned to UHOnCall, the general information unit for the university. Any assigned incident can be reassigned by the staffer if it is determined that it actually belongs to another department. The ultimate goal, of course, is to have zero incidents with all our customers finding their answers in the system.

4.1.1 The Design

By early 2001 the product had been selected and purchased, and now it was time to design the site. It was determined that rather than use local servers administered by our overburdened server administration group, we would utilize the hosting service offered by RightNow Technologies. On the one hand, the decision caused more than a little apprehension among staffers used to having a certain amount of ownership over their servers. On the other hand, it meant not having to worry about finding the funding for the new FTE that would likely be required since the existing administrators were already living on caffeine and good intentions. The one major drawback to using the hosting service was the difficulty in getting files uploaded directly.

Ultimately, those designated as software administrators (one for each partner department) were given on-site training (Remedy taught us well the cost of not training staff) and turned loose on the product. There were two major things that needed to be done. First the questions and answers had to be gathered and entered into the system. (Several departments used this as an opportunity to train people to use the Answer Console to enter the questions and answers.) Second, business processes had to be identified and then setup in the system.

In a rather embarrassing exercise in "what were we thinking" the software administrators each had their own specific interface to work with. It had been determined that each department would have its own "face" to show our customers, though we wanted each face to look as similar as possible. To that end, the administrators sat together in a room with laptops and a phone (not quite unlisted, but close enough) and proceeded to hash out

the particulars of how things would look and how they would work. When the administrators finished their work and stepped back proudly to look at what they'd done, they immediately turned to each other and said, "Well, that was stupid." Quick conferences with the project sponsors broke the bad news and offered the only viable solution. The independent interfaces had to go. Each interface was fine, but navigation across them was a nightmare. It completely negated the point of making life easier for our students. It didn't even make life easier for the administrators.

The project sponsors quickly agreed with the conclusions of the design team and approved the necessary changes. Everyone breathed a sigh of relief and dove back in.

4.1.2 *The Redesign*

The TSS administrator was selected to be the overall AskShasta administrator (mostly by virtue of not saying "no" fast enough). With a single interface containing all the questions and answers, it was unanimously decided that one person needed to be in charge with the rest of the departmental administrators acting as Super Users for their areas. Using the distributed authority model in use by the legacy Admin Computing System, each Super User was tasked with maintenance of their own question and answers, incidents, staff accounts and reports. The overall administrator became responsible for maintaining business rules (which affected all departments), complex report requests, adding new departments, upgrading the software and resolving technical issues as they arose.

Working closely with the Super Users, the new AskShasta administrator revamped a single interface to work with all departments instead of just one. Another interface was designated as the development site and on November 11, 2001, AskShasta was in production.

4.1.3 *The Data*

While the various design stages were going on, the problem of collecting the data reared its ugly head. Besides the obvious static FAQs on each departmental website, there was the issue of consistency and timeliness. One of the ongoing problems with any FAQ is aging. While this is less of a problem for an Admissions department with policies that rarely change without a legislative act (Why does the Texas legislature only meet once every two years? So they do less damage.), timeliness is a critical factor for technology support. All it takes is a single new release from Microsoft and half the FAQs are now obsolete. Everyone involved in the project saw this as more than just a way to create a good dynamic FAQ system. It was also an opportunity to finally clear the decks of stale, incomprehensible, and just plain wrong data on departmental websites. The quest for good data began.

Each department handled things differently. In some cases, front line supervisors were tasked with gathering the various FAQs currently in use and evaluating them. In some cases, the Super User did the work herself. TSS, recognizing that technology support is different than applying for Pell grants, took a different tack. One day a paper flip chart appeared in the helpdesk. After a quick consultation with the helpdesk supervisor, the word went out. Every helpdesk staffer (by this time there were upwards of 20 full-time and part-time staffers working the helpdesk) had to put a minimum of five questions and answers on the chart. While it was suggested that they draw from the questions they receive on their shifts, it was recognized that they probably knew best what

questions they get forty times a day during the regular semester that didn't come in with the same frequency during the summer. More than 150 questions and answers were presented to the TSS Super User (the AskShasta administrator wearing her TSS hat at that moment).

After culling the questions about pizza delivery and combining like questions, a good solid core of 20-odd questions and answers was established with others being held in reserve while their answers were verified and or expanded upon. Working with the internal documentation staffer, a series of "tests" was established to determine if a question and answer pair were ready for publication. Answers had to be:

Accurate

Complete

Useful

Friendly

"No" may be the absolutely accurate and complete answer to the question, "May I check out a VAX cluster from the University?" It's not very useful, though. Why does the student think he needs one? What is it he's trying to do? What service do we have that will allow him to do it within our departmental guidelines? Last of all, the answer must leave the customer feeling like s/he's been helped and that AskShasta is a resource s/he wants to use again.

4.2 **Account Management**

Looking back, there were many days when we said "Why do I have to hold the customer's hand, when they should be able to do this themselves"? The process we went through was that of teaching a little toddler how to walk, talk, eat, sleep, etc. one instruction at a time. Nonetheless, it worked (for the majority of customers).

Over time, we started using the web as "the" communicator as far as instructions to the customer was concerned. We then phased into using Remedy to capture fields of information about the customer and for the customer. Our homegrown account management system allows for the creation, password reset, and disabling of accounts on multiple systems with NT and Unix platforms. Our self-service process extends to customers needing alias management, account lookup, and password resets.

4.2.1 *E-Mail Alias Management*

Part of the automation for new customers receiving accounts includes receiving an e-mail alias. The e-mail alias is created so that external customers and others would be able to more easily remember the short form of the alias rather than an e-mail address that may be very long. The e-mail alias essentially points to an e-mail address so that mail sent to an alias is forwarded to the destination address that is linked to the alias.

The alias also serves as an authentication mechanism for the majority of our self-service processes. It is a unique identifier for all faculty, staff, students, and alumni and therefore serves as login credential.

We have developed a web page which allows customers to update/change the destination address of their e-mail alias provided the customer inputs proper authentication credentials. Students may keep the e-mail alias once they graduate as long as they maintain the alias with a valid destination address.

4.2.2 Account Lookup

As mentioned, new customers also receive userids and some accounts automatically from data received from authoritative systems. Thus, another on-line service which benefits our customers is the ability to view their userid and alias information based on the UH identification number provided by the University when the student is first admitted or when the faculty or staff is first hired.

This service has been of tremendous benefit to our growing distance education population, as well as for those students with grueling commutes or 8 – 5 jobs.

4.2.3 Password Resets

Password resets used to be a major headache for helpdesk staff. Now, this function has been pushed to the web allowing customers to reset their own passwords as needed. No longer do customers have to wait on the phone or in person for something that takes moments to accomplish.

5. PROLIFERATION

5.1 Remedy

As Remedy became more popular in and around our department, other departments grasped the scalability and flexibility of the system. One of the nicest side benefits of the system is the ability to rid ourselves of paper forms and reports cobbled together in Excel spreadsheets. Soon, the Remedy team was inundated with other departments wanting to convert their paper forms to Remedy screens and provide other services that were previously non-existent. At first, only other IT departments came calling, but eventually the colleges and other divisions began clamoring to get onto the Remedy bandwagon.

5.1.1 Information Technology Availability Center

The Information Technology Availability Center (ITAC) monitors our network system and major critical systems including the Remedy server. They wanted to use Remedy to track all system failures and network outages, and to log resolutions. This was pretty much how the TSS Helpdesk staff used Remedy. With the exception of including categories that pertain to ITAC, ITAC was able to start using Remedy immediately without any further development.

5.1.2 Tivoli Storage Management Department

The Tivoli Storage Management (TSM) department provides backup services to University departments at a cost. This department came to us simply to track their customer requests. In time, we saw a need for them to have their own separate screen. This screen was integrated within the Helpdesk application as a convenience for Helpdesk staff and TSM staff. We also developed a process whereby their customers received e-mail confirmation of their service request and each service request was followed-up and tracked for historical records. To further cater to their needs, we also developed a website via Remedy so their customers can input requests directly on the web-based Remedy schema.

5.1.3 Human Resources Support Center

Our most recent addition to the Remedy family is the Human Resources Support department. They too needed a helpdesk system. However, given the nature of their department, it was

imperative that all their information be kept confidential and therefore should not be shared with anyone else on the system. Thus, the Remedy team designed a completely new helpdesk system from scratch that only this department would be able to access and utilize. We also integrated a solutions knowledge-base to help them access their more common solutions readily. They have the ability to manage their own categories for their helpdesk, as well as all the problems and solutions of their knowledge-base.

5.1.4 Other Helpdesk Centers

Many departments which had a helpdesk structure simply came to us wanting to know what it was all about and whether it would be suited for their needs. Once they got a glimpse of it, it was *déjà vu* for us. We noticed the same excited, wide-eyed faces that we made only a few years ago. Aside from the above mentioned departments, we now have the College of Technology Helpdesk, the College of Engineering Helpdesk, and the UH Law Center Helpdesk, all using the Remedy system.

5.2 AskShasta

The initial deployment of AskShasta consisted of five departments from three different divisions. Today, more than ten departments across four different divisions use the system with more waiting in the wings to come on board. Unlike Remedy, which can be tailored for each department as needed without any degradation in service, AskShasta is most effective when presenting a unified interface to the public. Adding departments requires little effort on the administrator's part. Defining unique business rules and gathering data is the most time consuming part of the process. A new department can be added to AskShasta in less than two weeks, with most of that time being spent by the new Super User gathering and inputting the question and answer pairs.

6. WHAT WE LEARNED

In looking back at the road we've traveled, we can identify some important lessons learned. Many are simple and seem pretty self-explanatory, but it's interesting to see how often they have to be relearned. Things like "plan ahead" or "don't be afraid to try new things" or "don't be afraid to say 'I don't know.'" A big one for one of the authors is "sometimes you have to watch Plan A fail miserably before Plan B makes any sense at all."

6.1 On Collaborations

Compromise is often held up as the tool of choice when people have differing viewpoints. The only trouble is that when compromises take place, everyone gets something they want but they lose something, too. In collaboration, the goal is to see to it that no one loses anything at all and everyone wins. Collaborations occur when different people with the same goals work together to find the best solution for the team rather than the best solution for each individual on the team. This requires flexibility, creativity and the ability to stick egos in a drawer for the duration.

We can't say enough about the value of collaborations. Technology departments are not the only ones who need technology solutions. Whatever you're doing, odds are, some other department on campus is, or should be, doing something similar. Economies of scale make the occasional hassle of breaking down departmental barriers well worth the effort. Quite

often, lines of communication are already in place, they just have to be uncovered.

6.1.1 Planning

Before the first phone call is made or the first email is sent to begin a collaborative effort, a plan must be made. It doesn't need to be a complete formal project plan at this point. In fact, that would defeat the purpose of collaboration. This is more of a "pre-plan." Something to point the way without defining every single rock and crevasse in the road. This is where the instigating department thinks through what they're trying to accomplish. What problem is being addressed? What solutions are being considered? What general steps would likely be involved? How committed is the department leadership to the success of the project? This last question is probably most important. If the instigating department isn't sold on the concept, everyone might just as well stay home. Be prepared to be everything from a salesperson to a cheerleader to a psychologist. Be ready to get completely sick of having a positive attitude, because as the one starting the process, everyone along the line will be looking to you for their clues as to how things are going. If the initial project "Sponsor" isn't raring to go, everyone else's enthusiasm begins to wane and enthusiasm is exactly what makes the process work.

6.1.2 Building Partnerships

Most organizations thrive on the informal relationships between staff members in different departments. The best policies and procedures in the world will always have holes that those informal relationships smooth over. (Often, that's how those same policies and procedures were hashed out in the first place and how they're updated over time.) This works beautifully for most things. Where it doesn't work well is when money is involved. When it comes to budgets, the safe doors slam shut and formerly chummy departments glare at each other like two cats claiming the same chair. When building formal partnerships between departments it is imperative to go first to the person who can make not only the managerial decisions for the department, but also the fiscal decisions. Technology solutions such as Remedy and AskShasta require a departmental commitment to incorporate something new into how they do business, as well as an on-going financial commitment. Perhaps the front line workers are the ones who alerted the instigating department to the possibility, but the Vice President or Director is the one who makes the decisions.

Once departmental leadership has been brought in, the scope of the project can now be expanded from the initial pre-plan. This is a potential point of failure. Whatever the pre-plan is, be ready to toss it when faced with a better idea. The Registrar might not be technically savvy, but he knows his department and knows how they do business. They might do something that no one else does but makes incredible sense. This is at the heart of collaboration. Not just talking with each other, but actually listening and possibly learning. It's very easy to look at "how things are done here" and decide it's the best way because it's "how we've always done things here." It's more difficult to look at a new way of doing things and see the potential for your own area. Knowing when to adapt and when to sell your own ideas is a key part of the art of collaboration.

6.1.3 Distributed vs. Central Authority

Remedy exemplifies the conventional centralized authority model. It should be noted that until January, 2004, there was no regular

backup administrator for Remedy (two administrators existed for a few short months many years ago, but that phase passed quickly). For years we suffered from "bread truck syndrome": an unnatural fear that our one and only administrator would be hit by a bread truck on the way to work and we'd be in deep trouble.

With AskShasta, TSS revamped an old idea: distributed authority. Under our legacy Administrative computer system (Admin), departments "owned" their data and controlled access to their applications. For example, the Academic Records department owned all the student records, even though they had no direct access or control of the database. It was their responsibility, though, to grant access to the applications, train users and work with IT when programming changes were required. IT maintained the security and integrity of the database at the server level, while Academic Records maintained it from the user side. This and other similar partnerships worked well and have lasted for years. It was, in fact, these relationships that formed the basis for the AskShasta partnerships. With the exception of UHOnCall, all the initial AskShasta partners are old Admin departments. (AskShasta even uses three-letter Admin department codes because they are familiar and already ensured to be unique.)

Table 1. Comparison and Contrast between AskShasta and Remedy models at the University of Houston

AskShasta Distributed Authority	Remedy Centralized Authority
1 main administrator in TSS	1 main administrator in TSS
1 Super User PER partner department (several can act as backup for administrator – all can act as back up for other Super Users)	1 backup administrator in TSS
Total cost shared by departments	Only license cost shared by departments
Super Users maintain their own staff accounts, views, reports, and data. They determine business rules and escalations for their depts. Responsible for all internal training and documentation. Administrator maintains actual setup where it affects multiple departments (generally workflow and escalation rules), identifies and helps resolve conflicts. Equal access to vendor based training.	2 administrators in TSS maintain all application development, coding, training, and documentation
Hosted server	In-house server maintenance and administration
Hosted database	In-house database maintenance and administration

By giving partner departments as much control as possible over their pieces of the pie, you remove the "us vs. them" factor. There is no them, there is only us. Distributed authority still leaves a central administrator, but this person is the servant, not the master. In the case of AskShasta, the administrator set up a mailing list for the super users. Announcements from the vendor

are passed on by the central administrator. Problems that occur are posted for the central administrator to answer, though these same problems are often solved by another super user. Solutions to issues are brainstormed and discussed and eventually implemented. This is the official communications channel for administering AskShasta. No global changes are made without the consent of the group except in cases of emergency. Fortunately, we've had no emergencies of that nature, to date. In case of one, though, the group would be informed as soon as possible.

6.1.4 Gotchas

A few things bit us along the way and we tried not to repeat the same mistakes. At least we tried not to repeat the same mistakes any more often than we had to. Training was a big one. We delayed and delayed and delayed when it came to paying for Remedy training several years ago. We suffered greatly for it. When AskShasta came on the scene, we paid for on-site training for all the initial administrators (most of whom became super users). In the Spring of 2004 AskShasta underwent a major upgrade. A trainer was brought on-site again to bring everyone up to speed on the new version.

Back to the "how we've always done things here" problem, when you pay a professional for their professional opinion, make the effort to take what they say and see if it applies. Take preconceived notions out and put them in the drawer with your ego for a while and see how well the new information fits. It is very easy to decide that your organization is somehow different from all the other organizations out there just like it. Sometimes, someone else does have a good idea. Consider it. Maybe it isn't right for your organization—but maybe it is.

Last of all, and this is huge, don't assume that just because you started your collaboration and project plan with departmental leadership that they're the only ones with valuable things to say on the subject. Take a good long look at the people at the pointy end of your organization. Your front line workers are the ones who talk to your customers every single day. They're the face of your department. Listen to what they tell you. Solicit their input. Take their concerns into account. They're a valuable source of information regarding how things really work rather than how someone several steps up the ladder thinks they should be working. Odds are those front line workers are also the ones who will ultimately determine the success or failure of your project. If they buy into the idea, they'll move mountains to make it happen. If they don't buy in, there's a problem. No one can sabotage a \$100,000 project more thoroughly than the lowest paid people in your organization. All they have to do is not use it. Or use it

incorrectly. Passive aggression is a powerful tool. Cooperation is much more useful.

7. THE FUTURE

The University of Houston is on a roll, technologically speaking. With rising enrollments and plummeting budgets, any relief that can be squeezed out of technology is like money in the bank. At the time of this writing, the University is in the early stages of a portal project. In addition to that, the results of an RFI for a more full-featured account management system are being evaluated. Desktop management, remote control tools and a chat function for the helpdesk are all being considered and planned for.

For all the technology aids that have been implemented over the years, customer service still comes down to people helping people. Some of those people work to produce the tracking and self-service tools discussed in this paper. But we will always have bodies on the phones. Hours of service have been expanded with the TSS helpdesk scheduled to go to 24 hours a day beginning in the summer of 2004. TSS also has distributed support staff in all thirteen colleges with additional staff being added as needed. People will always be there to help our customers, but customers being able to help themselves is the ultimate goal.

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Deborah G. Richardson

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