STANFORD

INFORMATION TECHNOLOGY SERVICES

DRAFT

Order Management Redesign Planning

Version 0.6

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Revision History

Date	Version	Description/Reason	Author
2-27-06	0.1	Initial Reformat	Bruce Campbell
	0.2		Bruce Campbell
2-28-06	0.3	Added text from SR and Long Term Option text from LG	Bruce Campbell
3-01-06	0.4	Multiple changes throughout document	LG/BC
	0.5		LG/BC
3-06-06	0.6	Changes for clarity/tidiness	Nan McKenna
3-06-06	0.6	Changes to Team Requirements	Christine Yelda

Table 1 Revision History

1.0 Executive Summary

This report documents the results of the Order Management Redesign collaborative planning efforts that occurred from February 8, 2006 to February 22, 2006. Participants included: Christine Yelda, Alvin Chew, Erich Snow, Karen Cox, Liz Goesseringer, Sean Riordan, Steven Swinkles, and Xueshan Feng.

The purpose of the meetings was to expand upon Order Management Design efforts invested to date to include all of IT Services billable services.

Planning activities incorporated the following stated business needs and requirements:

- Greater consistency in requesting and fulfilling an IT Services billable service
- Greater efficiency with current order processing, so that every request, internal and external, can be tracked from start to finish
- Make ordering of services a better client experience
- A short-term (months) solution utilizing current tools and a long-term (years) solution
- Improved accuracy in billing
- A single point of entry to request any IT Services billable service
- Provision of a predictable acknowledgement to the client so that they are aware of order status

Upon review of stated business requirements, the team first reached a consensus on a high level solution or system model that would accommodate needs on both a short term and long term basis.

Inherent to the proposed model is the development of metrics that measure against stated business requirements and continued process improvement. Also, intrinsic in the model is a centralized billing function that resides within the financial organization.

The next step in the planning effort included development of potential short term or Phase I options by incorporating existing tools (Pinnacle and Remedy) and processes into the proposed solution. Five Phase I options were identified and entered into a risk-benefit matrix, each assigned a value. An analysis was performed on the matrix, and the results compared with current business requirements. It is important to note that although we acknowledge that manual processes and additional hand-offs result in increased error, all of the Phase I options have these risks due to the constraints and limitations of current tools:

- There is no authorization capability within the current toolset; however, authorization needs to be a long term requirement
- Pinnacle does not currently have an API to allow automation
- There is no workflow automation – all updates, tracking and client status must be manually performed
- Metrics and reporting will be limited and must be gathered manually

From the risk benefit analysis, it was determined that two of the five Phase I options were not feasible, so they were eliminated; however, they are presented in this document for informational purposes. Of the remaining three options, Option C is the recommended approach, as it clearly provides the least risk and quickest short term benefit. Option B is the secondary recommended approach for similar reasons. The

Phase II or longer term option is one that would not be bound by current tools, but would be an implementation that best supports the stated high level solution.

The final task of the team was to determine teams and resources required to move Phase I and Phase II options forward. All of the implementation options considered by the team require a dedicated Project Manager and supportive resources such as Business Owner, Steering Committee, Training Group, and Technical Writer. Due to limitations of current tools and the need for manual processes, additional staffing and/or an additional workload imposed on current staff will be required to support any of the Phase I options. Minimally, there will be staffing required to support the central billing function and other additional staff depending on the option selected. There may also be an impact on current client processes and procedures depending on the option selected. Finally, for any Phase I option to ultimately be successful, it is imperative that the agreed-upon workflow be closely tracked, and that management be accountable to ensure strict adherence to workflows.

2.0 Proposed Solution

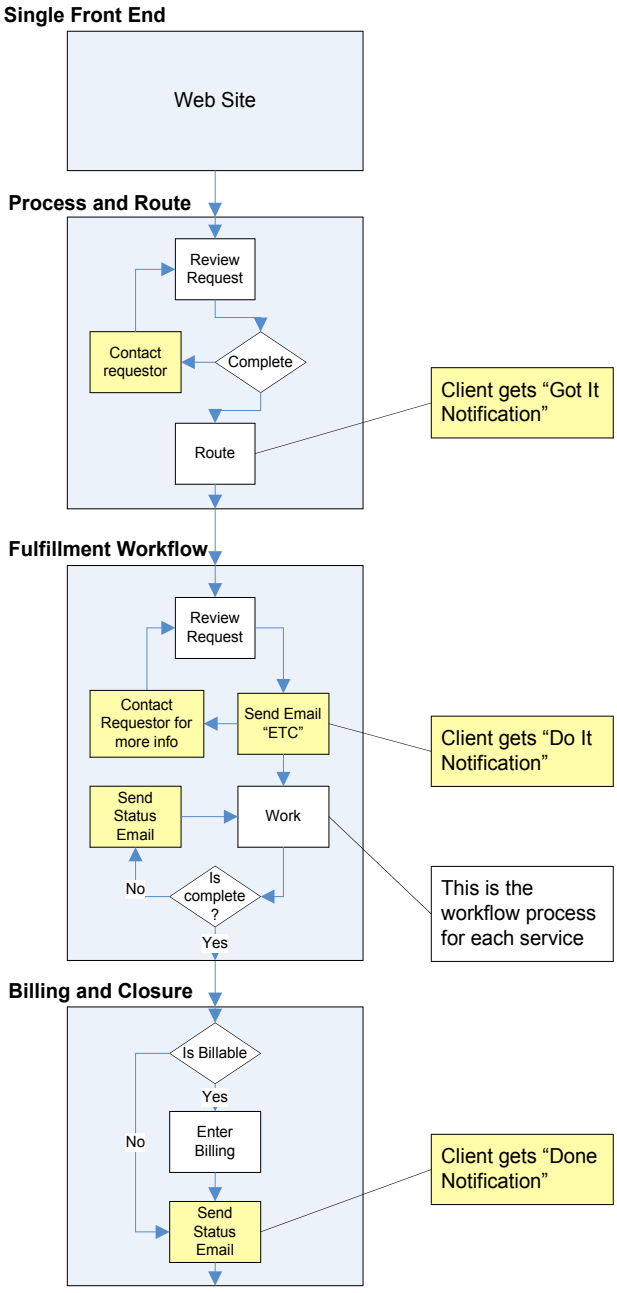

Figure 1 Overview Diagram

Figure 1 illustrates the high level solution or system model that would accommodate needs on both a short term and long term basis. This high level solution consists of the following elements:

- The ability to accept order requests through a single front end
- The means to process and route the requests to appropriate work groups
- A way to track the request and provide order status within the system at any given point in time
- The process to efficiently work the request via a workflow with agreed to integration criteria for all IT Services disciplines including:
    - Telecom
    - Data Center/Hosting Services
    - Projects
    - CRC
- The ability to close and accurately bill the request

2.1 Single Front End

Requests from clients/users of IT Services services would go to a single front end to request, change, or cancel most if not all services offered. A web based application/portal is the preferred method as clients/users use this format today for requesting Telecom services and infrastructure servers, like additional storage or SUNetIDs. In most cases a web application is also scalable and can be update in a single location without the need to touch each of the user systems.

2.2 Processing and Routing Requests

All requests will need to be reviewed, categorized and routed to the appropriate workgroup based on a set of published service workflows. The processing will also include filter to have a IT Services staff member contact the requestor to acquire additional detailed information. If the request has sufficient data to route, the first Client Touch Point will be invoked, “Your request has been received; here is your tracking number to assist you in determining your order status.”

All requests will have a unique number for clients to track their order. The request will be in a system that can then be tracked for changes, updates and the ability to track duration of changes.

2.3 Request Processing and Fulfillment

For each service that is offered, a workflow process will be created by the workgroups that are responsible for the delivery of the service. Each of these workflows will need to follow these criteria:

- Second Client Touch Point: communication to the client of Estimated Time of Completion (ETC) as appropriate
- Notification to the client that the request is on track or delayed based on the set duration of client updates
- If the request is complex, or if it is classified as a project, any addition services must be considered, such as the need for a Project Manager, Programmer, or other technical skill set

- If the project touches several workgroups (e.g. server racking, time & materials costs), the billing team must be notified to enter appropriate rates
- Tracking of tasks and a auditable hand-off of work between IT Services workgroups

2.4 Billing and closure

It was determined that a central group should be responsible for the billing entry and closure of all requests. A centralized group would ensure a consistent process for all IT Services billing, reduce errors and increase accuracy. They would also be responsible for the final Client Touch Point communication, including information about any recurring charges.

3.0 Phase I Options Diagram

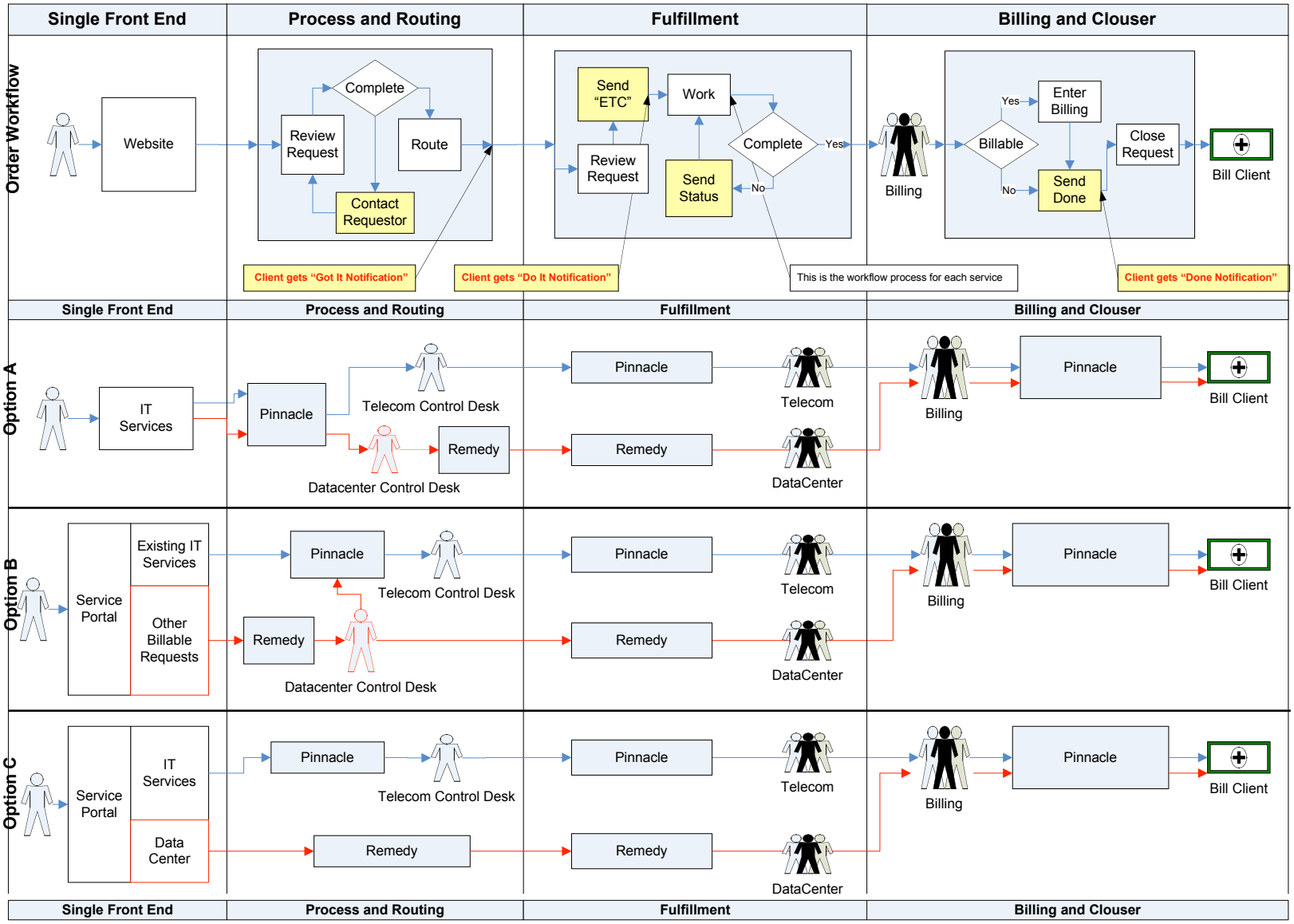

Figure 2 Workflow Options

Note: Under Process and Routing (Options A & B), the Control Desk is shown as two separate desks on the graphic but they could be separate or combined.

3.1 Option A

Figure 2 illustrates the primary options that were considered for a short-term solution. These are explained in detail below.

The first option is one that uses Pinnacle as a front-end entry point with Pinnacle templates. This option is restricted in that it can only address those services that can be front-ended with a Pinnacle template. Not all data center services or infrastructure services would be accommodated. Therefore, this option is not one that would provide consistency across the organization for all services.

Once the request is received into Pinnacle, there is manual intervention required to provide acknowledgement to the customer and determine how to route the request. This is due to the lack of any Pinnacle API and auto-notification capability. Routing of the request would be performed by duplicating the request into a shadow system, Remedy, which is the current tool for data center workflow. Again, links between the two systems can be established via manual process and agreed upon procedures for entering requests into Remedy.

It is recommended that this human interface be a Control Desk function. It would be the responsibility of the Control Desk to continually provide updates to Pinnacle from Remedy as the request goes through the system and completed elements of the order are to be billed. The Control Desk would also server as the customer point of contact for any order inquiry into order status.

Once in Remedy, it is the responsibility of the individual workgroups to adhere to the established workflow processes for completing tasks and handing-off to other workgroups or the billing function as appropriate. It is also the responsibility of the assigned work group to determine the complexity or scope of the request and what additional information or resources might be required to satisfy the request. Information provided in Remedy by the workgroups will serve as status information for the customer inquiries via the Control Desk or triggers into the billing system. All billing would be handled via the central billing function.

With this option, only authorized client users would be able to enter requests directly into Pinnacle. Clients would require training with regards to obtaining authorization and entering orders into the system. Reporting and metrics would be limited to the capabilities within Remedy and Pinnacle. With this approach, there are additional hand-offs between work groups and therefore; extra risk of human error. Finally, it is expected that additional Pinnacle, workgroup, and financial resources would be needed to create and maintain required templates.

3.2 Option B

Option B uses a web interface for both telecom and data center orders, whereby telecom orders are routed directly to Pinnacle and data center related orders are routed directly to Remedy. This is opposite of the Option A Pinnacle to Remedy scenario. This option would accommodate most telecom and data center services, but not all infrastructure services. Therefore, this option does provide greater consistency than Option A as it is able to accommodate a greater range of services..

Again, a human interface or a Control Desk function would be required to enter Remedy requests into Pinnacle. In this scenario, the order reference would be Pinnacle or Remedy with the caveat that data center related orders would first be entered into Remedy and then duplicated in Pinnacle via agreed upon processes and procedures. Because of the human element involved, the data center orders are at a high risk of

being entered into Pinnacle incorrectly, and generated with an error, thus causing a delay.

Additional resources are also required for this approach, both to build the front end and to provide the front end interface and control desk function between Pinnacle and Remedy. Additional Pinnacle templates would not be required. The control desk must also be able to translate work from Remedy into Pinnacle bill codes.

Once in Remedy, it is the responsibility of the individual workgroups to adhere to the established workflow processes for completing tasks and handing-off to other workgroups or the billing function as appropriate. It is also the responsibility of the assigned work group to determine the complexity or scope of the request and what additional information or resources might be required to satisfy the request. Information provided in Remedy by the workgroups will serve as status information for the customer inquiries via the Control Desk or triggers into the billing system. All billing would be handled via the central billing function.

With this option, clients would not be required to have additional Pinnacle training. However, this option has similar exposures due to the additional hand-offs. Finally, metrics and reporting would be manually generated and limited by the capabilities of Pinnacle and Remedy.

3.3 Option C

Option C includes a front end web interface to include all telecom, data center, and infrastructure orders. Similar to current processes, the interface would route telecom orders directly to Pinnacle, data center orders to Remedy, and infrastructure orders to current implementation tools. Order numbers would be reflective of the system of entry.

Once orders are received into the respective systems (Pinnacle for telecom, Remedy for data center), it is the responsibility of the individual workgroups to process and provide notification to the client. It is also the responsibility of the individual workgroups to provide proper inputs to the central billing function so that orders can be properly billed. Like the other options, workflow process within the workgroups must be strictly adhered to ensure order accuracy.

The benefit of this option is that it is the least disruptive to clients and current workgroup processes. Additionally, this option would be the quickest to implement as it takes a “business as usual” approach. Finally, this option would require minimal resources, no control desk function is required, only resources sufficient to define and implement the web front-end, and the resources to support the billing function, (which is required for all of the options).

3.4 Risk Benefit Analysis Options A, B, and C

1 = Low Impact
2 = Medium impact
3 = High Impact

Options	Current Employee Satisfaction	Client Impact	Process Complexity	Cost	Time to Implement	Total
Option A	1	3	3	3	3	13
Option B	1	2	3	3	3	12
Option C	1	2	1	2	1	7
Elements of criteria	1. Job Productivity impact	1.Client resources 2. Client training required 3. Confusion factor	1. Labor intensive 2. Multiple hand-offs 3. More workflow required 4. More systems	1. Staffing/additional FTEs 2. One-time charges 3. Re-occurring charges	1. Build/modify 2. Train staff and clients 3. Adopt/learn both internal-external	

Table 2 Risk Benefit Analysis

3.5 Team Chart-requirements for next steps

		Implementation Requirements and Recommendations			
Project Manager	100% FTE				
Project Resources	Project Augmentation: Technical Writer, note taker, etc. is recommended to minimize technical staff time for administrative tasks				
Decision Making	Steering Committee, (1) decision maker				
				Order Entry Options	
		Recommended Teams		**Option A**	**Option B**	**Option C**
Team name	**Direction**		**Skill Set**			
	Tasks			√	√	√
Billing	• Create a centralized billing function managed by Finance This function will be responsible for updating and closing Pinnacle Orders • Must define how and what they receive (data set) from workgroups and publish requirements accordingly • Define metrics to ensure/improve accuracy • Develop Business Requirements process to ensure all work effort is recovered financially enter billing for orders (audit trails, rejects, credits, cancellations, reporting, reconciliation) • Billing function should/must be disassociated from current technical and operational work groups • Define and develop job descriptions for function		• Pinnacle knowledge • Accounting Practices • Oracle knowledge • Audit knowledge • Knowledge of current service offering s and rates • Financial Business Owner			
Control Desk	• Control desk will receive, triage and enter order information into Pinnacle and/ or Remedy. 1st point-of-contact for client. • Recommend best location for CD to reside within ITS organization • Define process to review hand-offs to workgroup team • Define metrics to ensure/improve accuracy		• Pinnacle Knowledge • Remedy • Knowledge of ITS • Help Desk • Client Facing rep/AMs • Workgroup Rep	√	√	N/A
Workflow : Ops procedures/processes	• Clear ownership • Clear hand offs • Metrics • Escalation • Status update		• Representation from each workgroup across ITS, Admin Services, Project Office, Product	√	√	√

	• ETC – estimated time of completion • Done/ formal close process • Evaluate completeness of order for complexity – make judgment call on PM needed or not • Billing – Alert/Flag/Up front • Standard services/T & M • Figure out if you are allowed alternate order entry points • Get finance requirements for billing from Billing Function • Work with billing and CD functions to define & review touch points • Workgroup will provide CD templates • Allow assignment in Remedy	Managers, Account Manager • Individual members must have experience with current processes			
Employee communication and staff training	• Determine training requirements: technical, business, soft skills • Develop and implement transition management plan • Develop and implement project communication plan	• Managing Change • Instructional design • Human Resources • Communication • DTL • Steering Committee or Sponsor	√	√	√
Client communication, marketing and training	• Determine client training requirements: • Develop and implement client marketing and communication plan	• DTL group skill set Publicity, promotion	√	√	√
IT Services Site: Template Deployment	• ID process to create templates • Create required templates • ID Pinnacle ability to do auto notification • ID Remedy ability to do auto notification • Explore auto-entry into Remedy • Pilot and measure efficacy of process	• Pinnacle rep • Workgroup rep/ad hoc • Finance rep	√	N/A	N/A
Web Automation	• Investigate and design new web front end for all ITServices • Web form to automate input into Remedy • ID Remedy ability to do auto notification	Remedy Web dev/programming Pinnacle: developer level Web Designer PM	N/A	√	√
Services Offerings	Short-term • Review, validate, update, and consolidate	Finance	√	√	√

	current services to be published to clients via the web. • Review and prioritize services to be posted Medium-term • Define process to review services and rates on a periodic basis. • Define process for deploying new services into order system	Steering Committee member Reps from services			
Long term	• Authorization: o Who can order? Who is authorized to use PTA/ PTA valid o Or workflow needs to route to the authorizer • Investigates end-to-end solutions with no limitations of using current systems o Must have APIs o Customizations internal o Workflow o Use well known technology (Ex: web , xml) Assumptions – • If Pinnacle is still in use this team will need to pick up the original ODR team recommendations.		N/A	N/A	N/A

Table 3 Implementation Requirements and Recommendations

4.0 Phase II

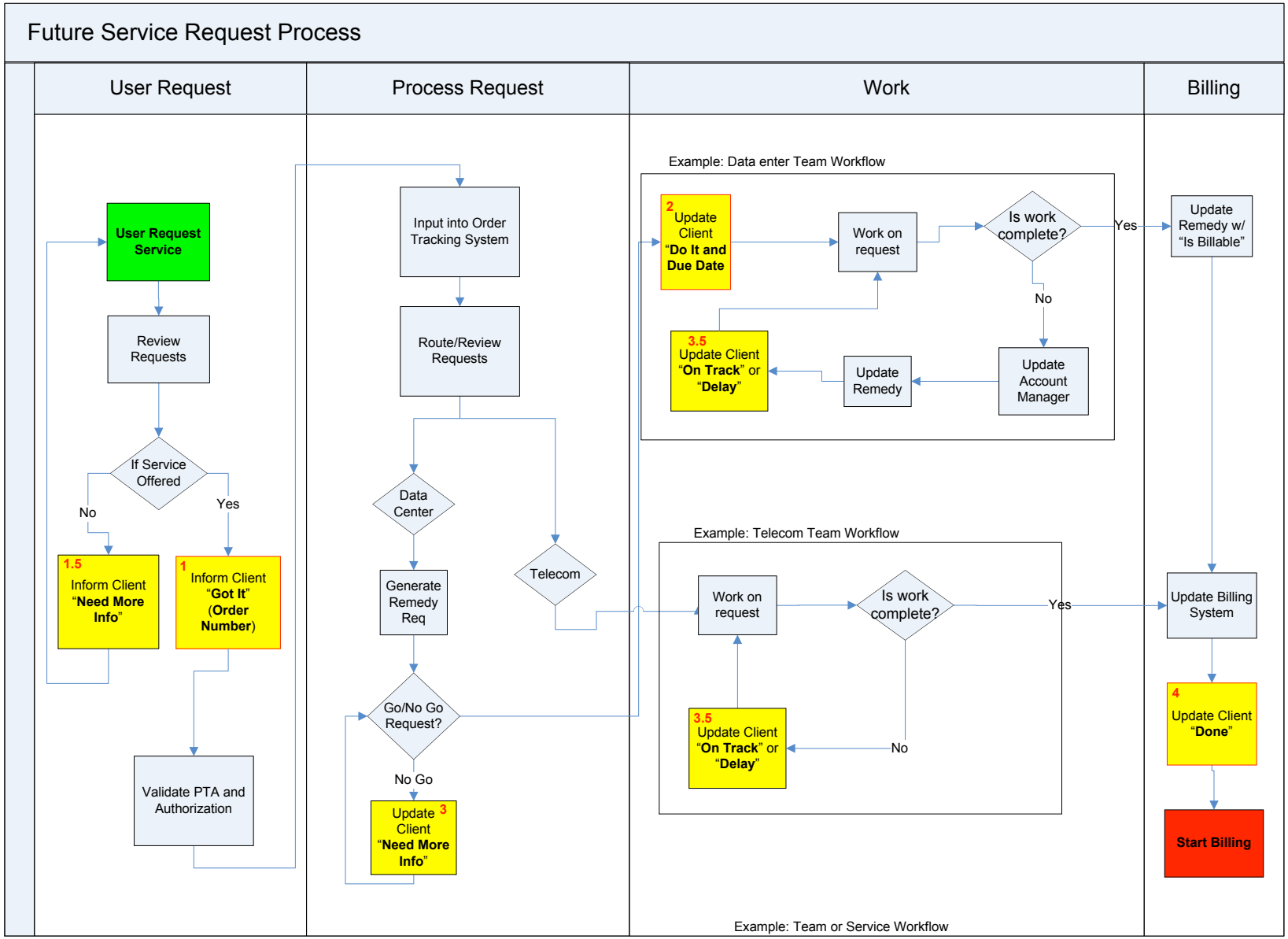

Figure 3 Long Term Option Diagram

4.1 Phase II Long Term Option

The recommendation for the longer term or Phase II option is to assemble a team with representatives from across IT Services who can evaluate strategies, architectures, and solutions to meet the following criteria:

- No limitation with regards to current tools-investigation of integrating Infrastructure and Oracle
- Consistent support for all IT Services
- Auto inquiry/notification capability
- Automated work flow support
- Authentication/authorization support
- Robust metrics/reporting capabilities

Appendix A

Option D

This option is similar to option B; however request would be batched and uploaded into Pinnacle. Due to the lack of any Pinnacle API, is not feasible and has been discarded.

Option-E

Option E considered a Pinnacle only front end and back end without incorporation of the Remedy system. With this scenario, all technical staff would be required to learn the Pinnacle system to manage workflow. It is the opinion of the team that this will encourage "non-standard" workflow process among technical staff. Additionally, since Pinnacle cannot front-end all order requests a method for generic requests will need to be provided. These generic requests would then have to be translated into billable units of work and bill codes, also deemed to be potentially, very high risk.

1 = Low Impact
2 = Medium impact
3 = High Impact

Options D and E	Current Employee Satisfaction	Client Impact	Process Complexity	Cost	Time to Implement	Totals
Option D	1	2	2	3	2	10
Option E	3	3	3	2	3	14
Elements of criteria	4. Job Productivity impact	Client resources 2. Client training required Confusion factor	1. Labor intensive 2. Multiple hand-offs 3. More workflow required 4. More systems	1. Staffing/additional FTEs 2. One-time charges 3. Re-occurring charges	1. Build/modify 2. Train staff and clients 3. Adopt/learn both internal-external	

Table 4 Options D and E