Exception Management Whitepaper:
Making Manual Resolution Efficient

Executive Summary

In an ever changing, complex and competitive marketplace, Communications Service Providers (CSPs) are rolling out new services and service bundles at a pace that is, in many cases, faster than their infrastructure will absorb. In this environment, CSPs are burdening their service fulfillment processes, which lead to a steadily increasing amount of exceptions.

Exceptions occur whenever a transaction does not or cannot complete the journey from its starting through intended endpoint. The global spend for Telecommunications service providers is over $2 billion yearly for direct labor costs to manually resolve exceptions from their Service Fulfillment processes.

While investments are being made to deal with the increasing rate of exceptions, the focus is on providing automatic handling of the exceptions. However, due to quickly changing market dynamics, unforeseen systems requirements and a myriad of complex service combinations, a significant portion of exceptions (20% or more) cannot be handled automatically and become work items requiring manual handling to resolve.

Using a context of service fulfillment, this white paper will explore the manual aspect of exception management and, in particular, will focus on the inefficiencies of manual resolution work centers. The paper will conclude with an overview of ServiceSPAN's product, **Work Center Manager (WCM)**, a solution that addresses the challenges of driving down OPEX while driving up efficiency in manual resolution work centers.

Service Fulfillment and Exceptions

In today's highly competitive and sometimes frenzied communications service industry, rapid development, customization and deployment of new services, service bundles, and multi-service offerings are necessary for service providers to stay competitive. CSPs are continually adjusting their offerings and rolling out creative product bundles to grow revenues and prevent erosion of their customer base, while maintaining a watchful eye on their operations expenses.

Customer orders for service must progress through a number of processes to insure that a service is successfully delivered. All systems involved in the order and service delivery process must be updated to insure proper billing, inventory status, etc. before a transaction can be considered to be successfully completed.

The CSP's service fulfillment objective is to achieve 100% service fulfillment without requiring any human intervention, which is the fastest and least expensive scenario. However, systems and infrastructure required to deliver services are quite complex and can provide countless opportunities for process problems or exceptions to occur.

A key component of a CSP's success is the optimization of the service fulfillment process, and a key optimization component is the efficient management of exceptions.

Despite the best attempts, even the most ambitious programs designed to implement automated service fulfillment solutions have not achieved fully automated processing of customer orders. Transactions that cannot be handled automatically by the existing infrastructure- ***exceptions*** **-** require a mechanism with which to be handled and resolved.

Exception Management

The two core components of Exception Management are automated handling of exceptions and manual handling of exceptions (work items). An ideal exception management solution *would* provide the capability to complete exceptions 100% automatically and require no manual handling. In a constantly evolving time–sensitive environment, this ideal solution is difficult, if not impossible to achieve, leaving many exceptions to be handled by manual resolution work center personnel.

Exception management tools and systems currently available to manual resolution work centers do not address the unique requirements that this type of workload requires. Manual resolution work centers can only achieve expense reduction and efficiency gains by utilizing tools that do more than just present work items in raw formats on a simple task list.

As the operational situation becomes more complex, exception management becomes more important and manual resolution work centers become more inefficient, creating a large expense burden for service providers. Inefficiencies in these centers also have a negative impact on customer satisfaction and order-to-cash timing, which compounds the long term effects of neglecting to improve the manual resolution of exceptions.

The Cost of Manually Handling Exceptions

Service Providers recognize that managing exceptions generated in the Service Fulfillment processes is a key area that requires improvement as evidenced by some interesting facts:

- A significant percentage of orders entered into the service fulfillment process can have erroneous, incomplete information resulting in high rejection rates.
- There can be dozens of disparate, unconnected silos of order management systems in an enterprise.
- Fulfillment issues and problems can cause large numbers of services to be billed incorrectly or create completion delays.

Direct Costs

Globally, Telecommunications Service Providers spend over $2 billion yearly in direct labor costs to manually resolve exceptions from their Service Fulfillment processes. This represents over 50% of labor costs associated with order management and will continue to increase as new and more complex services and network architectures are introduced.

Hidden Costs

To more fully understand the total costs of exceptions to an enterprise, we have to look beyond the direct costs and consider the indirect costs associated with manual exception resolution in a legacy non-homogeneous environment such as:

- decreased customer satisfaction
- longer order-to-cash times
- higher and increasing support and maintenance costs
- inability to respond quickly to new product launches
- increased customer churn
- difficulty in training

Manual Resolution Work Centers

Manual Resolution Work Centers are not being addressed as a strategic component of the overall Service Fulfillment and Customer Satisfaction process. When improperly equipped, these work centers can have a negative impact on the timely completion of fulfillment requests, thereby causing delays in fulfillment processing, and adding significant labor costs due to their intensive manual environments. They represent a very high cost component of a Service Provider's OPEX budget, and generally suffer from some obvious causes of inefficiency such as:

- departmental segregation
- independent "silo" systems
- duplication of activities
- expansion of already labor-intensive protocols
- difficult to adapt
- lack of enterprise scalability

Manual resolution work centers can only achieve expense reduction and efficiency gains by utilizing tools that do more than just present work items in raw formats on a simple task list.

Perpetuating this environment leads to duplication, gaps and/or overlapping of work centers, investigations, staff, systems and procedures. The legacy methodology means that one transaction can result in multiple exceptions as it hits different systems on its route through the processing chain. The end result is high cost of failure, lack of control and subsequent high risk exposure.

Although generally overlooked by CSP's, there is an emerging recognition of, and interest in, correcting the inefficiencies experienced in the operations and management of these centers. These work centers encounter some common problems that are fairly independent of CSP size, transmission technology, infrastructure technology, etc.

Manual Resolution Work Center Inefficiencies

ServiceSPAN commissioned market research on 20 CSPs worldwide to explore this issue. The results revealed some major operations shortcomings which significantly impact manual work item handling times and the efficient completion of service fulfillment exception management tasks. These inefficiencies can be broadly categorized as:

Data Integrity

- Lack of complete information available to efficiently process a Work Item
- Cumbersome manual process to obtain information from other sources
- Inconsistent data between systems

Work Management

- Inability to easily detect, manage, prioritize and complete “Higher Cost” work items and work items for "High Value" customers, etc.
- Inability, beyond simple “task lists”, to distribute the highest priority work items to the right staff at the right time
- Lack of visibility into work load, resource requirements and available resources
- Inability to associate related work items together (e.g. Trouble Tickets and Service Orders) and preclude counterproductive, conflicting and/or duplicate work efforts
- Lack of reconciliation between work item activity and billing or other operations systems
- Inability to track tasks and task status

User Interface

- Irrelevant data on the screen
- Cumbersome presentation
- Generalized user screens that are not streamlined for task specificity
- Complex interfaces to multiple systems; e.g. native language of OSS or network element
- Difficult access/interaction with other systems
- Difficulty in training users
- Inability to create user interfaces with sufficient commonality making it very difficult to absorb/fulfill new ad hoc product requests

Communications

- Difficulty in inter and intra departmental communications

Difficulty in Customization

- Long timeline to implement changes (internal or 3rd party implementations)

Process Improvements

- Lack of ability to identify, trial and promote process improvements expeditiously
- Lack of ability to implement process changes locally

Multiple processing environments for different services/work center types across the enterprise

- Lack of ability to create a common solution across the enterprise creates unnecessary operations inefficiency and cost burden

Addressing Manual Resolution Work Center Inefficiencies

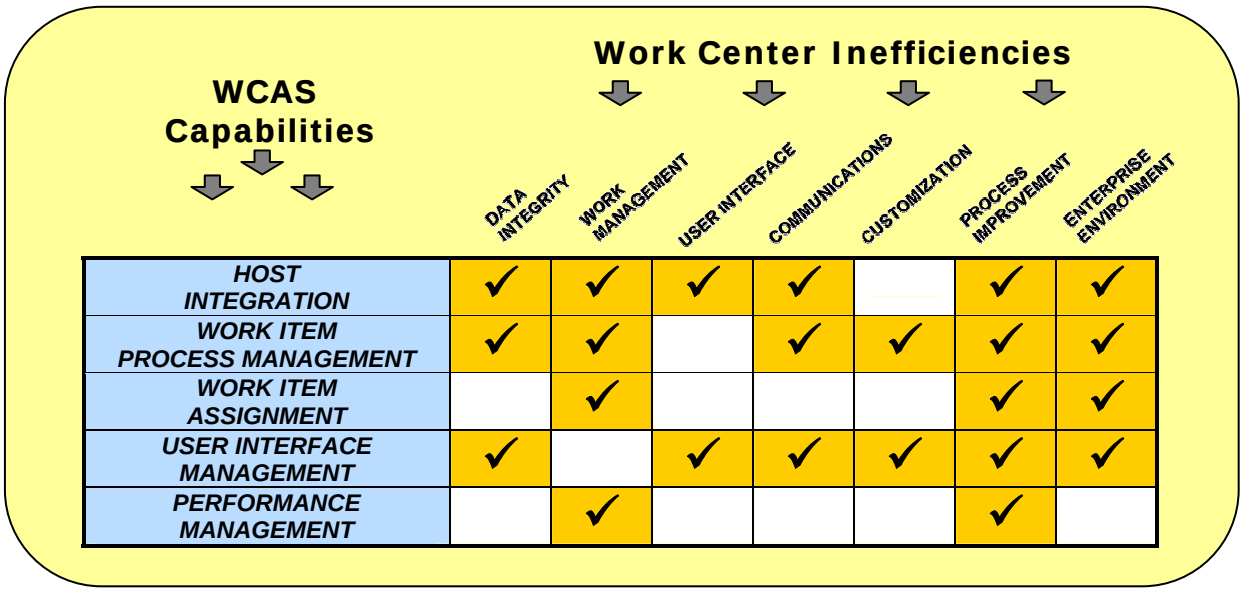
It is now evident that, after spending billions of OPEX dollars on legacy Work Centers, Service Providers need to implement a powerful solution, capable of quickly turning inefficient work centers into strategic components of a swift, cost effective and successful Service Fulfillment and Customer Satisfaction process. CSPs must provide these organizations with the tools necessary to perform their functions as efficiently as possible.

There can be many different types of applications that fall into the category of "Work Center Automation Software", characterized as software specifically designed to increase the efficiency of work center operations and reduce the cost of those operations by:

- eliminating repetitive manual tasks
- reducing work item handling times
- increasing the flow of information between people and organizations
- providing a simplified user interface

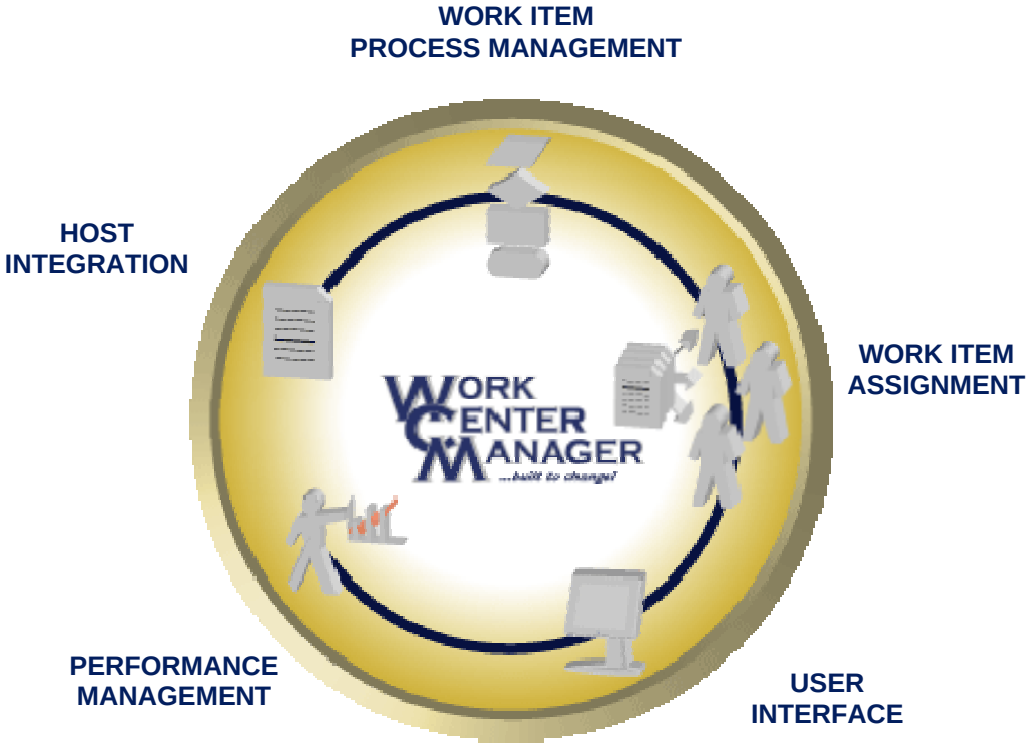
Applications such as CRM, BPM and other generic task or process management types of applications, while attempting to address these issues, tend to focus on process automation in an ideal environment. At best, they will provide "notification" of a process failure or exception, but leave opportunities for efficiency gains and cost reductions in the inevitable manual resolution environment, unfulfilled.

A new breed of work center automation software (WCAS) must be designed with the specific purpose of focusing on the manual environment, and as a minimum, meet the requirements as characterized in the commissioned market research project.



Work Center Automation Software (WCAS): *Essential Components*

A fully capable work center solution must provide the ability to simply set up templates, parameters, distribution rules, user interfaces, attributes, etc. that are utilized for a specific application. This must be an easy to use environment that does not require detailed programming ability to run and must contain the following capabilities.



Host Integration

To provide an efficient environment in which to complete the resolution of work items, work center systems cannot be stand alone entities but must have the ability to access other infrastructure systems to retrieve, integrate and update information. Any proper implementation must therefore integrate with existing operations systems as simply as possible, and readily adapt to any changes in interfaces that are introduced over a systems lifetime.

Work Item Process Management

CSPs live with an ever changing business and process environment, and in an effort to maintain control and responsiveness of their infrastructure and processes, require vendors to provide solutions that are off-the-shelf and configurable, with easy to modify business rules. This will allow them to add/modify business rules/processes in response to their business needs quickly and without the need for vendor involvement. Infrastructure components, including work center solutions, must be equipped with some form of a simple to use visual ***process definition environment (PDE)*** that allows the customer to easily modify existing operations processes. Business rules must be abstracted from the core software and be modifiable without changes to software code.

To maximize efficient handling of various types of work items in a work center, it is critical that users operate with the most current and complete data available, whether it resides in the Work Center System or other external connected systems. The automated analysis of a work item and the ability to find (research) relevant data and associate it with the work item throughout the completion process will significantly reduce work item handling time for work center personnel. The user will always have ***augmented data*** and complete information with which to work.

There can be instances, based on work load, specific talent sets, lack of availability of online information, organizational requirements, non-standard requests, incompletion of dependent tasks, etc., in which a work item might have to be referred to another department for some completion action. The ability to provide these ***interdepartmental referrals*** in a simple way, with comments specifying the reason for referral or the completion action required, is an important component required to create an efficient work item handling environment.

Work Item Assignment

Given the numerous services and service combinations being introduced by CSPs, the complexity of processes and infrastructure, different states along the service fulfillment process at which a process can fail, various levels of users skill sets and training capabilities and various levels of customers and SLAs, work centers that must manually complete exception work items are very non-homogenous rapidly changing environments.

A best in breed work center system must provide flexible ***work item assignment***, to ensure that the right work is distributed to the right person, with the necessary skills at the proper

time; an extremely complex task to manage. The system must be able to automatically provide the best fit work to a user considering such dynamic ***multidimensional prioritization parameters*** as work item type, work type, modification type, geographic location, network element type, network element name, time attributes such as due date, work volumes, user skill levels, forecast completion capabilities and manage the allocation of the work items to minimize any work completion anomalies.

To provide a comprehensive distribution capability, the system must also consider the entire work load, the work center organization(s) as a whole, and redistribute groups of work items to centers, locations, etc. that have spare capacity thereby leveling the workload throughout the organization.

In addition, since work items can flow freely from various sources into the work center environment it is likely that there will be multiple work items in the system associated with the same problem.

To provide complete visibility into a work item completion task, a work center system must have the ability to coordinate and ***group related work items*** throughout the completion process (e.g. a Trouble Ticket and Reject) so they are all assigned to a user simultaneously providing a complete "picture" and preventing different users from performing "conflicting work".

User Interface

While it is essential that all of the "under the hood" elements of an optimum work center solution be available to a CSP, it is imperative that the User Interface be equipped with presentation and interaction capabilities to maintain maximum operations efficiencies, or the handling times will be greatly compromised.

In completion of a work item, inefficiencies will result if a user has to deal with:

- complex, redundant, irrelevant raw work item data that is not efficiently organized and presented
- determining which function must be performed to complete the work item and somehow access complementary information
- updating an external system via "swivel chair" access or a non-integrated window

A truly capable work center system equipped to reduce handling times will provide ***User Interface Management*** capabilities whereby:

- Only functions related to the specific task being performed will be presented to the users, streamlining their decision process and providing access to additional information required for work item completion.
- Only information that is needed to complete the specific work item will be displayed in a simplified and user enhanced format, relieving a user from sifting and sorting through arcane, poorly constructed and presented data elements.
- The User will be able to seamlessly access external applications that are required to complete a work item, auto-populate and transfer specified data from work items to the external application without re-keying or knowledge of the external system protocols, templates, etc.

Performance Management

A complete solution for an operations work center must provide the tools for managers, supervisors, etc. to continually ***review, analyze and improve*** their operations and processes. They must be able to:

- perform comprehensive data analysis to understand the status of the work center, work items, efficiencies, etc
- analyze information and apply process corrections on an ad hoc basis that will optimize a centers performance by focusing on high value/high return tasks
- provide a complete view of the work centers and employees performances, workloads and work items

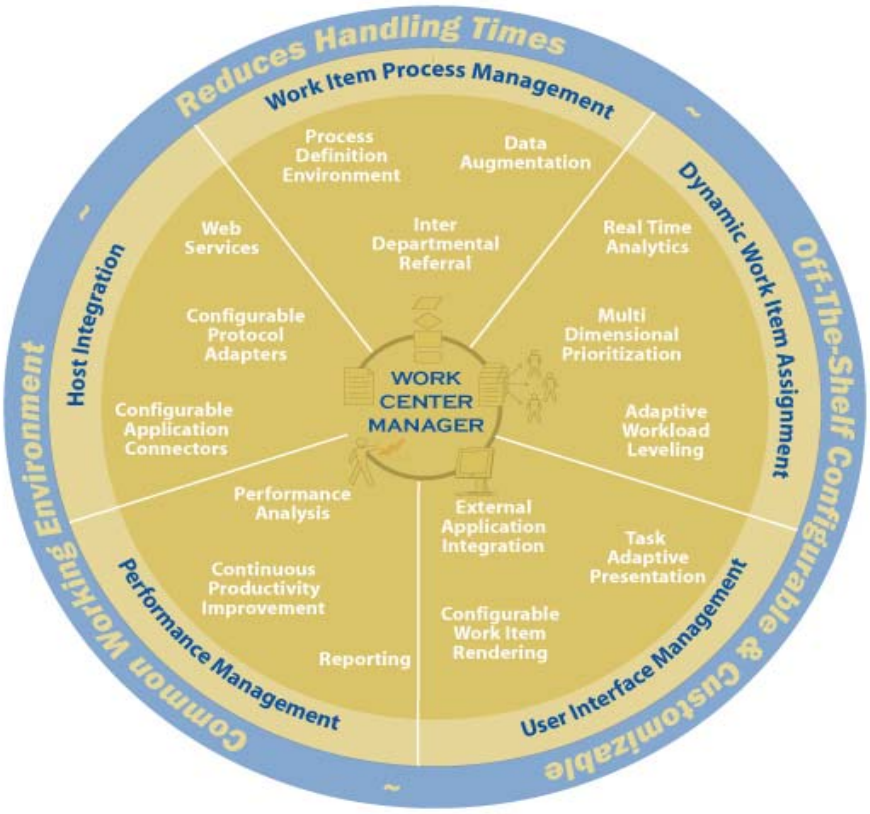
The system must maintain a complete record or event history of the transactions that a work item was subjected to during processing including times, status, user ID, transactions, state, etc.

This information is a valuable asset to a work center and can be used to create a pseudo knowledge base that will enhance a center's ability to learn and complete items faster and provide valuable data to the manager via reports or views to analyze and improve productivity of users, groups and centers.

WCM: Reduce OPEX and Increase Efficiency of Manual Resolution Work Centers

WCM is a purpose-built application that provides a work center with a configurable infrastructure for the management, presentation and resolution of work items. The capabilities of WCM allow a CSP Work Center Manager to monitor the work item workload, monitor available resource talent pool, and through an adaptive environment, provide seamless and efficient distribution of work items to the right user at the right time– automatically.

AGILE- Utilizing a Process Definition Environment (PDE) with generic and task specific models, routines and templates for quicker implementation and faster ROI.



SCALABLE- Providing a uniform environment for the management of work items across an enterprise regardless of type, volume, origin, format, etc.

The Table Is Set For Change

While investments are being made to deal with the increasing rate of exceptions, the majority of CSPs are attempting to provide automatic handling of the exceptions with no human intervention. This objective continues to be missed and a significant portion of exceptions (20% or more) become work items that require manual handling to resolve.

Conclusion

Globally, communications service providers spend over $2 billion yearly for direct labor costs to manually resolve exceptions from their Service Fulfillment processes. This will continue to increase as new and more complex services and network architectures are introduced.

To control these seemingly implacable costs, CSPs must provide solutions that address manual handling inefficiencies.

WCM enables a strong service fulfillment/exception management environment by improving manual resolution operations, and delivering benefits that have allowed CSPs to:

- **Reduce OPEX** by greatly improving work center work item handling times and reducing work center operation costs
- **Enhance order-to-cash timing** by expediting new product/new services delivery to market
- **Reduce lifecycle support costs** by creating a common work environment across the enterprise allowing the reuse of processes, consolidation of maintenance and support costs, and reduction of the number of supporting vendors.

About ServiceSPAN

ServiceSPAN delivers Work Center Automation software to Communications Service Providers, focusing on the generally overlooked back-office/offline work center. ServiceSPAN's flagship product, Work Center Manager™, is implemented in major US RBOC work centers, handling more than a million transactions monthly, resulting in increased revenue, reduced costs and enhanced productivity.

To learn more about the ServiceSPAN Work Center Manager

www.servicespan.net/products.html

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