Difficulties in Implementing Effective Problem Management

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Abstract - Information Technology Infrastructure Library (ITIL) framework is almost 22 years old, and it is rapidly becoming de facto standard worldwide. ITIL framework is a process based best practice for supporting and delivering IT services. ITIL has defined many processes, and Problem Management process is one of the vital processes that contribute to success of service operation and service delivery. This paper provides brief overview on few processes and their relationship under service operation lifecycle. The paper focuses on the benefit of effective problem management, and the barriers in implementing effective problem management. The paper also set platform for further research opportunity to find and analyses the factors contribute to ineffective Problem Management process.

Index Terms - Correlation among Event, Incident and Problem Management, Event Management, Incident Management, Ineffective Problem Management, ITIL, Problem Management, Service Operation

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1 INTRODUCTION

Information Technology (IT) companies around the world are implementing ITIL framework to standardise and improve IT service management. By implementing ITIL framework, companies look to achieve improvement in availability and reliability with reduced cost and high quality. As per ITIL there are five stages of service lifecycle. One of the stages is service operation. IT service operation is responsible to deliver services within service level agreement, and manage delivery of the agreed services by providing adequate support for the application and infrastructure responsible for service delivery. Numbers of processes are managed during service operation stage. Below is the list of processes obtained from ITIL Version 3 literature.

- Event Management
- Incident Management
- Request Fulfilment
- Access Management
- Problem Management

Above listed processes are closely related, especially Event Management, Incident Management and Problem Management. Successful implementation and on-going management of one process have follow on impact on another process.

2 CORRELATION AMONG EVENT, INCIDENT AND PROBLEM MANAGEMENT

2.1 Event Management

To ensure uninterrupted delivery of services, service operation proactively detects potential fault and service degradation via implementing 24*7 automated monitoring systems. These monitoring systems perform various types of check related to infrastructure and application, e.g. a check to detect disk space levels to ensure adequate capacity or simulation application login behavior to ensure user can login to the application, and confirm application is running and functioning as expected. When an event is detected, the monitoring system sends alert to appropriate stakeholders. These alerts can be in from of an email or text message to mobile phone. Service operation may also be performing manual health checks to ensure uninterrupted delivery of services. These activities are managed by Event Management Process.

2.2 Incident Management

Events detected by monitoring system can be potential incidents. Unplanned interruption to service delivery is categorised as an Incident, e.g. due an event, monitoring system may send out alert that monitoring system unable to connect to database, often failure to connect to the database can be an interruption to the normal service, therefore it is categorised as an incident. Incident is resolved by restoring the normal service as soon as possible to ensure high availability and minimize the impact on the service operation. These activities are managed by Incident Management Process.

2.2 Problem Management

Service restoration activity does not concentrate on finding underlying cause of an incident; therefore it is likely the services can be interrupted again in future due to reoccurrence of the incident. To avoid reoccurrence of the incident to improve service availability, service operation conduct root cause investigation to identify underlying cause of the incident. By implementing Problem Management Process, service operation ensure that further investigation is completed after service restoration to determine the root cause and permanent resolution to eliminate reoccurrence of the incident. These activities are managed by Problem Management Process. There is a close correlation among Event Management, Incident Management and Problem Management processes. Based on the database server example used above, below diagram illustrates this correlation:
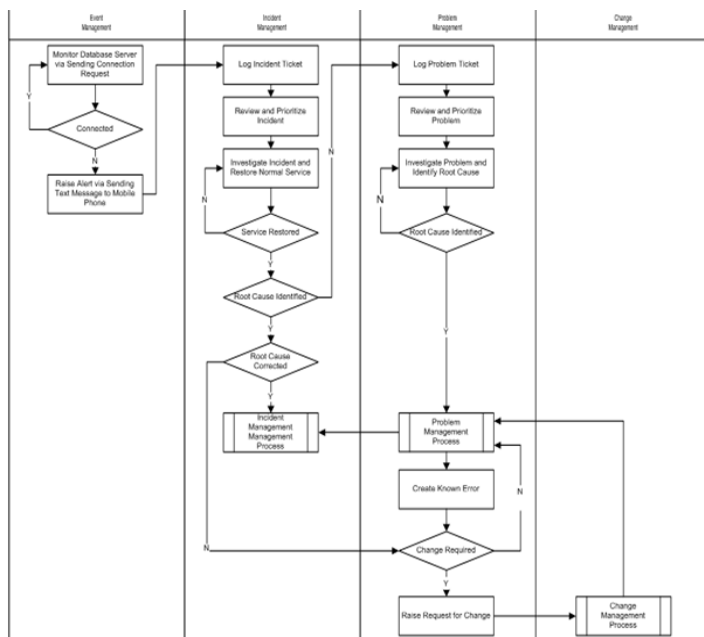
Figure: 1 Illustration of Correlation among some Processes during Service Operation Cycle

Problem management is a critical process, which is vital for achieving full benefit of ITIL implementation. Problem management can be both reactive and proactive. Reactive problem management deals with a problem after it has occurred and become cause of one or more incidents e.g. problem may be raised after the service restoration for an incident. In contrast, the proactive problem management is proactively looking for problems by examining the trend of events, system performance, incidents, and data and application logs etc, e.g. system performance graph may highlight slow response time for some transaction at a particular time, which can potentially cause service degradation. Some of the benefits of good problem management are listed below:

- Identify root cause, workaround and resolution of a problem, and create and publish known errors which in turn increase service desk efficiency to provide service restoration.
- Prevent reoccurrence of an incident, which in turn decrease service interruption and increase system availability.
- Reduce chance of service degradation by proactively identifying unusual trends and managing a problem even before it becomes an incident.
- It assists in reducing number of critical and high priority incidents, which in turn increase client satisfaction and faith in service operation.
- In complex system environment where multiple applications have dependency on each other to provide complete service, it is vital to perform end to end problem management to increase overall system availably and reduce cost of managing an incident.

As per above listed benefit a good problem management can deliver uninterrupted services and can increase revenue.

3 DIFFICULTIES IN IMPLEMENTING EFFECTIVE PROBLEM MANAGEMENT

Implementing good problem management process can be difficult due to below listed reasons:

- **Lack Training**

  ITIL certification is not essential to work in a service operation; therefore it is likely that some staff may have insufficient knowledge and understanding of ITIL framework. In some cases, staff may not have an opportunity to receive ITIL training or ITIL overview as part of their orientation. Without proper certification and training, it becomes difficult for such staff to follow the right process, which means it increase the chances of gap in process implementation. To avoid such situation, companies where ITIL framework is in place should include some sort of basic ITIL training as part of the orientation.

- **Resistance to Change and Incompliance to Process**

  IT industry is a global market. There is a high probability that staff may come from different background, and have different approach of practicing IT. Some staff is keen to improve and become process oriented, but some staff tends to resist to the change. In situation where staff is not keen to be process oriented and change their approach towards learning new methodology, it becomes hard to fully achieve the goal of a process. Another example of incompliance may be that service desk may not link incidents to appropriate problem tickets, which can impact on problem priority and in turn make the problem management process inefficient.

- **Different Priority**

  Different process owner may have different priority. An incident manager will be keen to have the service restored as soon as possible, and may not be thinking about root cause investigation. In some situation this can make it hard for the problem investigator to establish the root cause, e.g. service restoration may be completed by restarting the database server without ensuring the appropriate logs are saved to assist with root cause investigation

- **Lack of Information and Documentation**

  Lack of details is a huge barrier for efficient problem management. Sometime problem is raised from an incident without capturing sufficient information, which makes it difficult for the problem investigator to continue further investigation, and it can also impact on performance of a problem management team in turn can make service operation inefficient.

- **Team Structure and Accountability**

  On some project problem manager rely on multiple teams for investigation, root cause and workaround findings. However due to team structure, problem investigator may

not be directly reporting to the problem manger. Situation like this, make it difficult for the problem manger to achieve desirable outcome. Regardless of team structure, accountability must set and communicated to ensure processes are followed, and appropriate documentation is created for benefit of service operation.

- **Lack of Key Performance Indictors and Review**

    Problem management may not have service level agreement for the response and resolution for a problem ticket. This can contribute to slowness in investigation and make the process expensive. Key performance indicator (KPI) should be set not only against the problem ticket, but the responsible personnel as well. To ensure KPIs are met there must be a review process in place.

- **Management Support**

    Management support is essential to success to a process. Sometime management doesn't empower process owner to ensure correct processes are followed, and people are made accountable for incorrect process. This can be due to different priority and lack of escalation from the process owner. It is important to have clearly defined RACI and communicated to appropriate stakeholders.

4 CONCLUSION

IT companies are keen to implement ITIL framework as it is beneficiary in long term. However without proper training, education, and accountability, the processes can become ineffective. Problem management process is a key link between incident and change management processes. A well-defined and organised problem management process is essential, and it can contribute in reducing cost, increasing efficiency of the service desk staff and high system availability. This paper set platform for industry based research opportunity into the factors which make problem management difficult and how to make this process more effective.

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