Automated Problem Resolution using KEDB

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Abstract - *In IT Service Management, Time plays a crucial role where it comes to achieving the key SLA metrics around incident management including response time and resolution time. Where known incidents form a problem and in case of failure to above SLA, leads to penalty to Support Delivering Organization. To cope up with this scenario we are introducing with the System Framework which will help to achieve the SLA's for Known Issues/Incidents formally called as Problem. In this Framework, KEDB (Known Error Database) is integrated with CMS (Configuration Management System) to Support the Problem Management Workflow without any human intervention. Where KEDB is built by the Support Analyst having list of known Issues with its Resolution where Resolution includes workarounds, rollback patches and issue fix. CMS will be storing all performance and System configurations. The Research targets to develop a Generic System to automate the streamline process of Identifying the Problem and to resolve in its minimal time frame with accurate solution. The above system benefits with time reduction between the process of problem identification and resolution, Reduction in Cost for Training and Less Support Assistance deployment.*

***Key Words:** **SLA (Service Level Agreement), KEDB, CMS, Generic System, Problem Management.**

1.INTRODUCTION

In IT Service Management, Time plays a crucial role where it comes to achieving the key SLA metrics around incident management including response time and resolution time. Where known incidents form a problem and in case of failure to achieve SLA, leads to penalty to Support Delivering Organization. To cope up with this scenario we are recommending the System Framework which will help to achieve the SLA's for Known Issues/Incidents formally called as Problem. In this Framework, KEDB (Known Error Database) is integrated with CMS (Configuration Management System) to Support the Problem Management Workflow without any human intervention. The primary objectives of problem management in ITIL process is to prevent Incidents from happening, and to minimize the impact of incidents that cannot be prevented. 'Proactive Problem Management' analyzes Incident Records, and uses data collected by other IT Service Management processes to identify trends or significant Problems. KEDB will be built by Support Analyst having list of known issues with its workarounds, rollback patches, issue fix. A known error database

(KEDB) is a database that describes all of the known issues within the overall systems. It describes the situations in which these issues appear, and when possible, it offers a workaround that will get the user around the problem and back to productive work.

2. Problem Statement

In this research, we are trying to focus on the problem of the ITIL process which are followed in the IT Industry to resolve the incident which occur on the frequent basis in the current system. There is no single point of contact to resolve problems, incident and issues which leads to wastage of time in brainstorming and consultation with the concerned teams.

3.Current system

In Existing System, Support Team requires training to resolve issues and problems which are faced in the production system and implement the best practices and adhere to it. Due to the human intervention in the problem management process, the turnaround time exceeds to get to a decision and tackle the issues or problems faced. In the Existing System, There is dependency on the skills, knowledge, and ability of the support team to react fast to a problem or incident. The incident transit time increases when it goes from one team to another team.
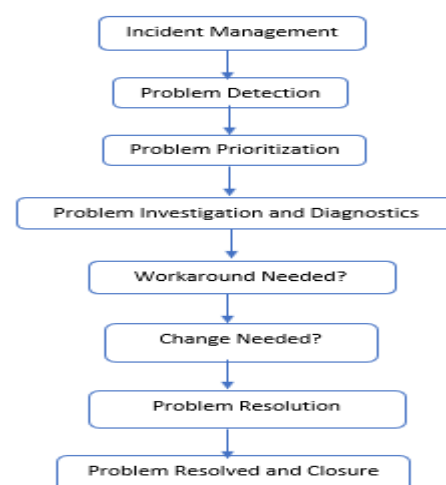

Fig -1: Existing system workflow to resolve an incident or problem

4.Proposed System

Proposed System will solve the major challenges in Service Industry where it comes to Incident Management and Resolution of Incident. The Proposed System is based on ITIL Standards along with Known-Error Database implementation. Which will exponentially decrease the time invested by support team in solving repeated issues, which is lack in ITIL Framework.

4.1 What is ITIL?

ITIL (formerly an acronym for Information Technology Infrastructure Library) is a set of detailed practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business. In its current form (known as ITIL 2011), ITIL is published as a series of five core volumes, each of which covers a different ITSM lifecycle stage. Although ITIL underpins ISO/IEC 20000 (previously BS 15000), the International Service Management Standard for IT service management, there are some differences between the ISO 20000 standard, ICT Standard by IFGICT and the ITIL framework.

ITIL describes processes, procedures, tasks, and checklists which are not organization-specific or technology-specific, but can be applied by an organization for establishing integration with the organization's strategy, delivering value, and maintaining a minimum level of competency. It allows the organization to establish a baseline from which it can plan, implement, and measure. It is used to demonstrate compliance and to measure improvement. (It is to be noted that there is no formal independent 3rd Party Compliance Assessment available for ITIL compliance in an organization, Certification in ITIL is only available to individuals and relates to their knowledge of the 5 books)

4.2 What is Incident?

Incident management (IM) is an IT service management (ITSM) process area. The first goal of the incident management process is to restore a normal service operation as quickly as possible and to minimize the impact on business operations, thus ensuring that the best possible levels of service quality and availability are maintained. 'Normal service operation' is defined here as service operation within service-level agreement (SLA). It is one process area within the broader ITIL and ISO 20000 environment.

ISO 20000 defines the objective of Incident management (part 1, 8.2) as: To restore agreed service to the business as soon as possible or to respond to service requests.[citation needed]

Incidents that cannot be resolved quickly by the help desk will be assigned to specialist technical support groups. A resolution or work-around should be established as quickly as possible in order to restore the service.

4.3 Incidents, problems and known errors

Incidents may match with existing 'problems' (without a known root cause) or 'known errors' (with a known root cause) under the control of problem management and registered in the known-error database (KEDB). Where existing workarounds have been developed, it is suggested that referencing these will allow the service desk to provide a quick first-line fix. When an incident is not the result of a problem or known error, it may be either an isolated or individual occurrence or may (once the initial issue has been addressed) require that the problem management process become involved, possibly resulting in a new problem record being raised and registered for future reference.

4.4 KEDB

A KEDB is a database of all such known errors, recorded as they are and when they happened – and they're maintained over time.

A KEDB record will have details of the incident, when the outage happened and what was done to resolve it.

In Configuration Management the Clustering and Classification helps to categories the problem based on type and classify it based on severity

Benefits of using KEDB:
1. Faster restoration of service to the user
2. Repeatable Workarounds
3. Avoid Re-work
4. Avoid skill gaps
5. Avoid dangerous or unauthorized Workarounds
6. Avoid unnecessary transfer of Incidents
7. Get insights into the relative severity of Problems

Known Error check sheet:
1. Incident SRS Severity P1 / P2
2. Start Date
3. Time Resolve Date
4. Time Impacted
5. Services Incident
6. Description
7. Temporary Workaround exists? (Yes / No)
8. Workaround information Root cause known? (Yes / No)
9. Permanent Fix Determined (Yes / No)
10. Permanent Fix information Change SRS, if applicable?
11. Estimated Fix Date Comments Known Error Status (Open, Deferred, Closed, Awaiting Change, Risk Accepted, etc)
12. Known Error Title (Short Summary)
13. Known Error Description (more details of the Known Error/Risk)
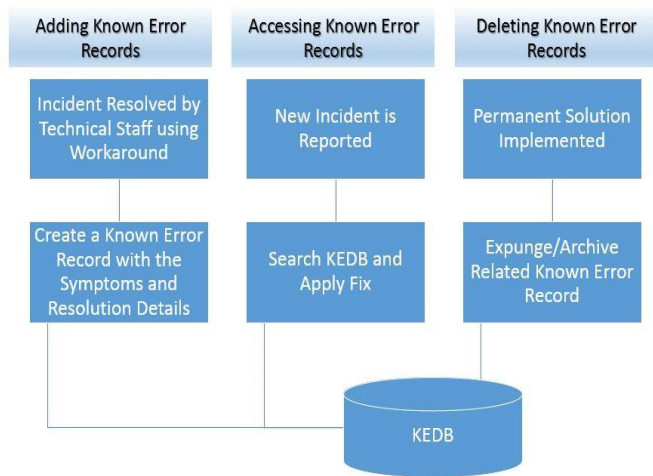14. Risk ID (if required, please add Risk ID here and reference Problem SRS into the Risk Register)

Fig -2: workflow of the Incident in form of record in KEDB Architecture

The Above Diagram shows the actual workflow of the Incident in form of record in KEDB Architecture

The **Technical Implementation of KEDB** lies in following criteria

1. Size of Team
2. Kind of Business
3. Scope – Global and Local (Bounded or Unbounded)
4. Type of Incident or Request
5. Turnaround time

Hence based on above points the technology implementation vary from Excel to Bigdata and intermediator SQL or Oracle solutions.
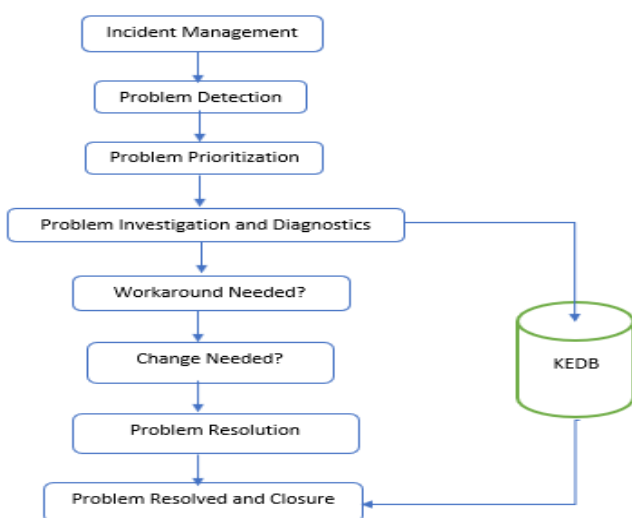

Fig -3: Proposed system workflow to resolve an incident or problem

The Proposed KEDB setup for ITIL – Incident Management caters the following points

- Faster Resolution using dedicated Database for Incident and Problem
- Less Turnaround time in transit
- Better Customer/Client Satisfaction.
- Prioritize the problems and incidents based on severity
- Eradicating Manual Procedures from Service Industry

5. CONCLUSIONS

Errors experienced by users can come from all sorts of places: glitches in the software, malfunctioning hardware, incompatibilities among hardware devices and software packages, network devices, outsourced services, security features, the documentation or training materials issued to users, and even the policies and procedures that govern the workflows. There are many reasons to create and maintain a known error database, and this feature will benefit both your IT help desk and users.

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