smartQED
Fix it Fast!

Our Approach and Benefits

smartQED is an intelligent Incident Resolution platform, with a visual workspace (*QED Space*) for efficient collaborative investigations & ML-powered recommendations (*QED Insights*) to reduce resolution times.

To analyze the benefits provided by smartQED, we first need to understand how teams investigate problems today, collaborate with others during these investigations, and reuse the problem-solving knowledge.

Today: Chats, Incident Reports & Knowledge Articles

Solving complex problems often requires the involvement of multiple subject matter experts (SMEs) from different teams, who might be working from various locations. This scenario is highly likely now as people mostly work from home due to the corona virus crisis. Given the need to keep IT systems running smoothly 24x7, teams are often also spread across different time zones, making it harder to collaborate and coordinate actions across shift changes and handovers.

How do operations teams solve and track problems today? There are three essential activities, as illustrated in the following figure. Subject matter experts (SMEs) investigating problems may alternate between these activities, switching as needed.

Figure 1. Activities in Investigating & Resolving a Problem or Incident
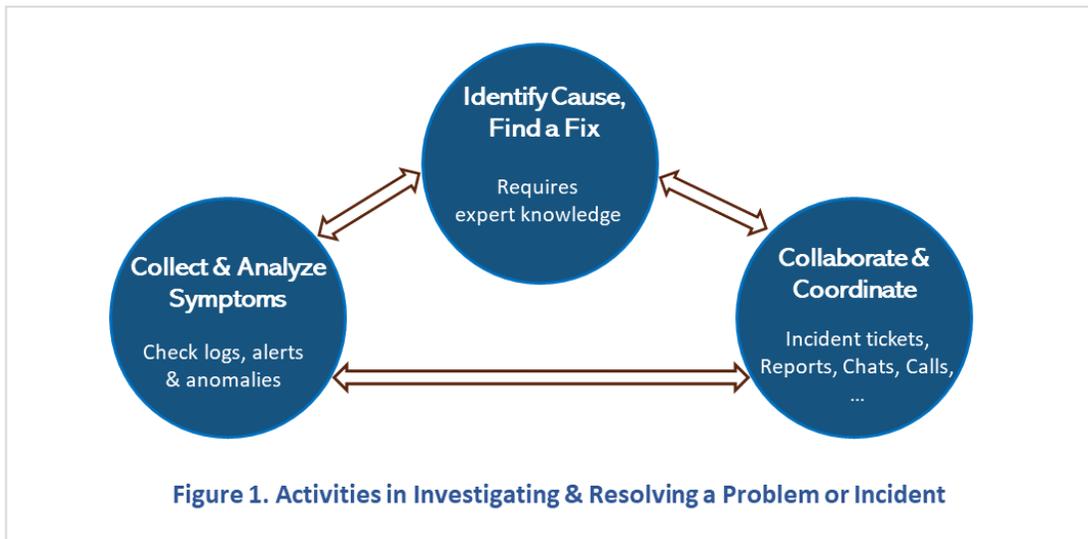
1. **Collect & Analyze Problem Symptoms:** Symptoms related to the problem are collected and analyzed by members of the investigation team. These symptoms serve as evidence to feed into the decision-making process in the next step.

2. **Identify cause & find a fix:** SMEs decide which cause or component is responsible for the problem (is it a hacker attack, mis-configuration of the database, or effect of changes to the application) and then propose a fix (either temporary or permanent) for the problem.

3. **Collaborate & Coordinate:** Observations, decisions, solutions or workarounds for the problem are recorded and tracked by the team using text-based notes in incident tickets, reports, call or web conference transcripts, chats, emails, and the like. Additionally, external communication with impacted customers and other stakeholders such as supervisors and managers may require detailed explanations on the current investigation status and strategy. Lessons learned during the investigation may also be documented in knowledge articles and guides for future reference by others.

   If a similar problem occurs after some time, often the first step is to search resolved incidents and knowledge articles to see if the problem is known, and then read the earlier information to learn how it was solved. This search-and-read step is particularly followed by newer members in the team who do not have the experience of skilled senior SMEs.

Incident Resolution Pain Points without smartQED

1. **Slow / fragmented text-based communications**: A major issue is that the investigators collaborate and coordinate amongst themselves and with external stakeholders using mostly linear textual notes which can easily get fragmented or *very long and convoluted*, making it a burden to communicate with others. Reading and trying to understand such linear unstructured text takes up precious time for everyone and results in poor coordination, especially across different shifts and time zones.

2. **Unreliable keyword searches to locate similar prior incidents**: Text-based tools such as ITSM systems and chats do not provide any active help to investigators as they solve problems. They are only useful for adding notes in a linear sequence, and for searching by keywords. If a similar problem happens in a few weeks, prior incidents have to be searched for and located, then read and applied to the current scenario in order to be of use. However, locating relevant documents through keyword-based manual text searches is highly *person-dependent*, often varying by the experience and skill level of the investigator.

3. **Inefficient reading of long text to learn from prior incidents**: Assuming a similar incident is found, reusing this knowledge requires another reading of the prior incident reports or knowledge articles to understand what symptoms were seen and what actions were taken for the earlier problem. This process of knowledge reuse through reading of long text-based information is *highly inefficient* – it can cause significant confusion and substantially delay the resolution of the new problem.

To summarize, *reading and trying to decipher incident details from linear or fragmented text is tedious and inefficient*, especially for multiple teams collaborating remotely on high-pressure investigations of complex problems.

A New Approach with smartQED

QED Space presents a new approach – you can start with a visualization, called an Investigation Map™, of the potential causes for a problem. You can create this map on the fly, get it from a pre-defined template or from earlier solved problems. It provides a clear view and a structured context for all information related to an investigation. *QED Space* merges concurrent updates to the map by multiple users with notifications to other active users. Further, the investigation maps of solved problems are automatically analyzed by our integrated ML-based Recommendation Engine *QED Insights* to provide useful suggestions for future problems, effectively augmenting human intelligence.

Using a visual map and automated ML-based recommendations in smartQED greatly reduces the need to write and read long text-based incident tickets, reports and knowledge articles, enabling much faster and easier resolution of problems.
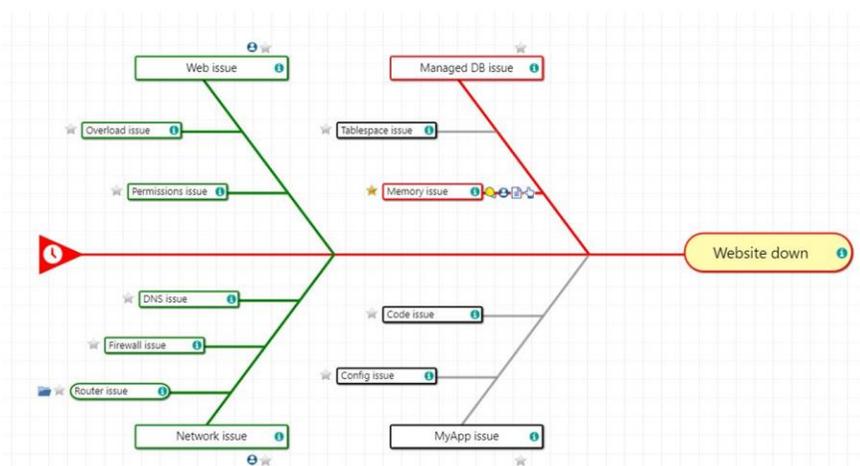

Here's an Investigation Map for a problem "Website down", with a fishbone-based visualization of the hierarchy of potential causes and detailed information such as fault status, notes, actions, attachments specified in the context of each cause.

Strategy and status of the investigation are *crystal clear* to everyone in a few seconds, requiring very little reading!

Figure 2: A Sample Investigation Map

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Benefits Realized with smartQED

Businesses can experience *50-70% reduction in incident resolution times (MTTR) and 60-80% reduction in team effort* (person-hours) by using smartQED to investigate issues, depending on team size, SME skills, and problem complexity.

Based on the analysis of actual IT problems of moderate complexity, we find that without smartQED, times spent in the different types of problem-solving activities (shown in Figure 1) are approximately as below:

- Activity #1 – **Collect & analyze symptoms: 20-25%**
- Activity #2 – **Identify cause & find a fix: 50-60%**
- Activity #3 – **Collaborate & coordinate with others: 15-30%.**

Figure 3 below compares the times spent in these activities without and with smartQED (using both *QED Space* for collaboration and *QED Insights* for recommendations). For the cases we analyzed, dramatic benefits are realized in Activity #2 and #3 using smartQED.

Figure 3: Benefits Comparison With & Without smartQED
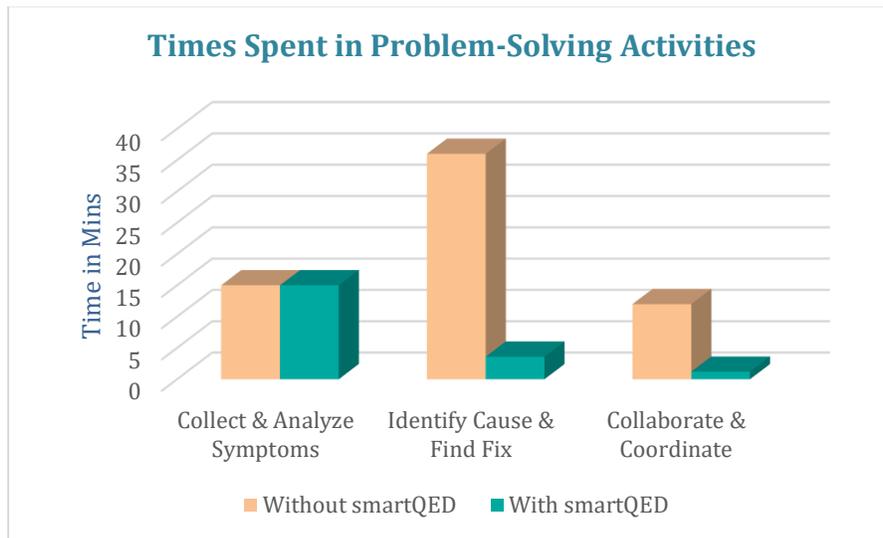
Benefits of using smartQED are greater as the team size grows, problems are more complex requiring more people to be involved, and for repeat problems where automated recommendations from *QED Insights* facilitate much easier knowledge reuse compared to manually searching for and reading earlier incident reports and knowledge articles. These suggestions are most useful for new or junior members in the team who get significantly upskilled. Our ML algorithms continuously learn from solved problems to keep improving with time, and maximizing the benefits for your business.