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Extraordinary

## Site Reliability Engineering for the Connected World: Revolutionize your IT Ops

Achieve agile and stable IT operations with 75% reduction in P2+ incidents

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# Barriers for implementing agile methodologies prevents Digital Service Providers (DSPs) from achieving stability in their IT operations

Though DSPs follow agile software development processes, they often face challenges in its implementation, leading to unstable IT operations.

**Traditional IT operations, which struggle on scalability and reliability can negatively impact critical business outcomes like release cycle times, time-to-market of new features, and customer satisfaction**

## Major challenges faced by DSPs to achieve agile & stable IT operations

**A heterogenous environment causes operational silos**, due to the use of different systems from multiple vendors

**Rapidly evolving IT landscape** brings a huge shift in how Dev team engage with IT Ops.

**Lack of pre-defined best practices** inhibit collaborative approach among different teams

**Lack of modern software tools in IT Ops** hampers the time-to-market for the deployment of new features or products

## Importance of agile methodologies in DSPs' IT operations

Engagement	Typical benefits	Following a full agile transformation
Time-to-market	2X-4X acceleration in delivery	Shortens the time of new feature launch
Features	3X-4X increase in customer satisfaction	Leads to close collaboration between business and IT
Delivery efficiency	15%-25% reduction in development cost	Leads to faster implementation cycles

Source: [Boston Consulting Group](#)



**Site Reliability Engineering (SRE) principles provide agile methodologies to transform DSPs' IT operations**



# SRE principles – an agile methodology to drive DSPs' IT operational excellence

SRE principles provide an agile and prescriptive approach for implementing DevOps, thereby, offering the required speed & stability for a DSPs' IT operations

 **SRE principles originated at Google. It includes the following approaches:**

**Work to minimize toil**  
Identify and eliminate the toil

**Manage by service level objectives (SLOs)**  
Select an appropriate target for the service and manage it by that SLO

**Operations is a software problem**  
Use software engineering approaches to solve a problem





**Automate the job away**  
Determine what to automate and how to automate it

**Move fast by reducing the cost of failure**  
Accelerate problem discovery

**Share ownership with developers**  
Foster collaboration between business, development, and operation teams

SRE principles can be implemented in any of the DSPs' IT operations. This insight focuses on the four facets of a DSPs' IT operations – ITSM change management, incident management, production deployment, and culture

## Significance of SRE principles in DSPs' IT operations

Elements of IT Ops	DSPs' requirements	Positive impact from SRE implementation
 <b>Change management process</b>	<p>With the increasing demand for enhanced digital customer experience, DSPs are <b>compelled to release frequent application changes and feature updates</b> on their online intake channels (web portal, e-commerce and other digital platforms)</p> <hr/> <p>There is a <b>need to eliminate toil and reduce cumbersome processes</b> in DSPs' digital channels (e.g., B2B, B2C web portals)</p>	<p><b>Increased reliability &amp; scalability of operations</b></p> <p><b>Improved operational efficiency and quality of the content delivered</b></p>
 <b>Incident management process</b>	<p>Mostly DSPs employ in-house tools, open-source applications or loosely connected toolchains. There is a <b>need for standardized tools</b> and approaches</p>	<p><b>Avoid siloed tool sprawl</b></p>
 <b>Production deployment process</b>	<p>There is an increasing <b>need to eliminate manual intervention</b> in the production deployment cycle of DSPs' digital channels (e.g., B2B, B2C web portals)</p>	<p><b>Accelerated time-to-market of features/updates</b></p>
 <b>Culture</b>	<p>IT Ops team have to juggle between addressing the incoming requests, maintaining stability and performance of the systems. Hence, there is a <b>need for a collaborative approach and an always-improving culture of learning</b> to accomplish all the tasks.</p>	<p><b>Improved collaboration among team members and achieve quicker resolution</b></p>

### Recommendation

- It is imperative to **adopt SRE principles which are most relevant to the DSPs' domain.**
- Successfully implementing this approach requires the right set of enablers that are presented in the upcoming slides.

# SRE implementation **enablers** to provide stability and ultra-scalability to DSPs' IT operations

## 1 SRE principles in change management process

**Eliminating toil in change management process**, enables DSPs to accelerate time-to-market of the updates to be deployed on the digital platform

## 2 SRE principles in incident management process

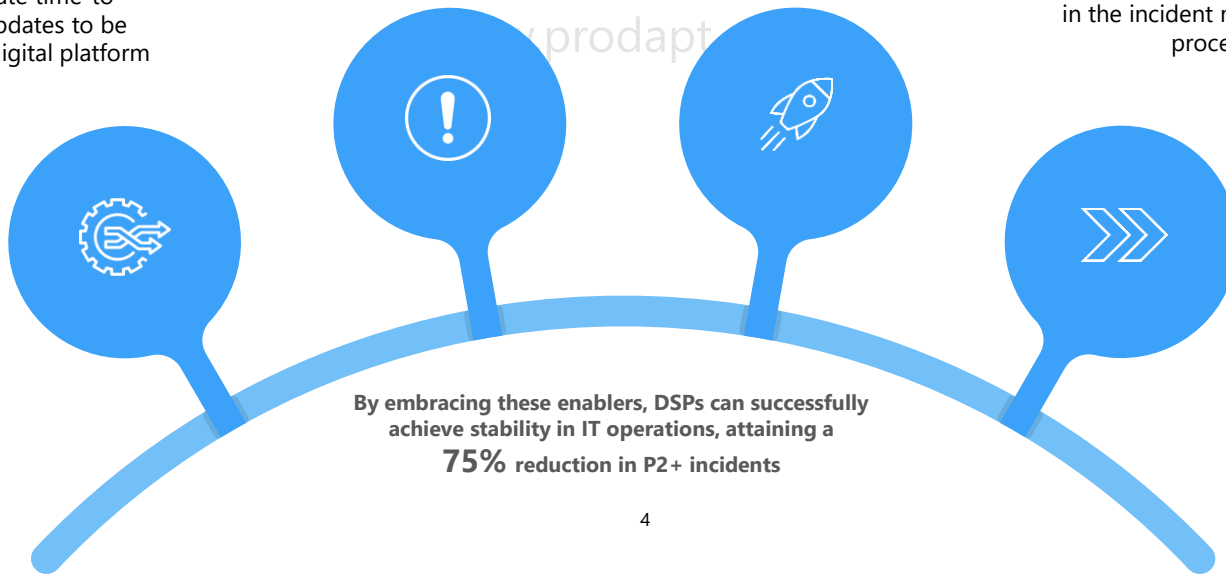
**Modernizing the incident management process** using alerts and on-call management solution reduces the time-taken for incident response

## 3 SRE principles in production deployment process

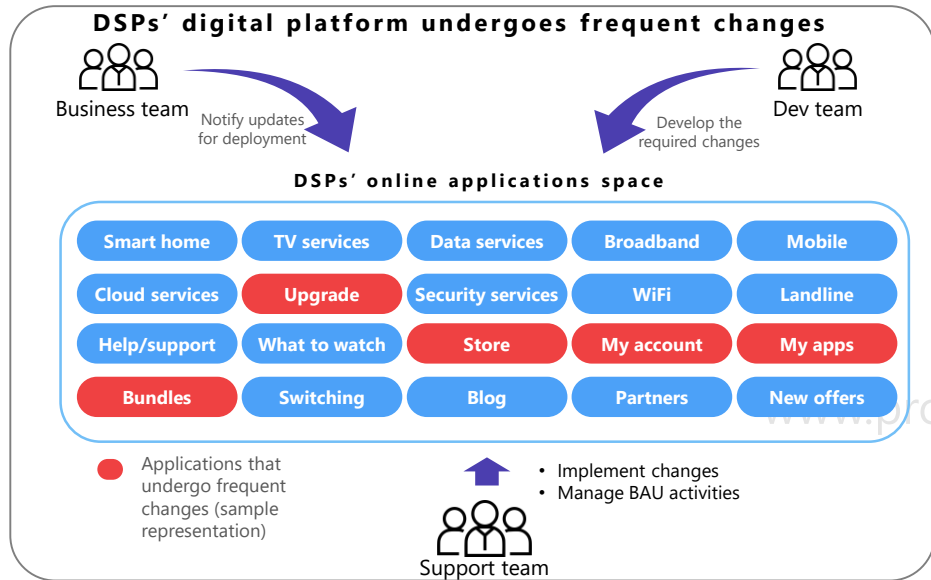
**Improving production deployment cycle**, in DSPs' digital platform using automation

## 4 SRE principles in cultural shift

**Increasing DSPs' IT operational efficiency** through blameless postmortem culture in the incident management process



# Eliminating toil during the change management process, enables DSPs to accelerate time-to-market of updates to be deployed on the digital platform



## Sample (representation) of toils for different applications

Application	Toil description	Time taken	Frequency	Toil type	Plan of attack
Store	Publish content in production manually at 7AM, 10AM, 12PM, & 3PM – tiring and time consuming	> 8 hours	Daily	Repetitive	Implement AEM scripts
All applications	Resources need to monitor group chat/calls during the entire deployment cycle	> 8 hours	Daily	Repetitive	Implement application monitoring tool
My account	Registration related issues due to the failure of 3 services - gives an inflow of 20+ incidents/ month	0.5 hours	Daily	Non-tactical/ Reactive	Operations support systems (OSS) to provide a permanent fix for 3 webservices

**Toil** is a task which tends to be **manual, repetitive, automatable, tactical, lacks any enduring value, and that scales linearly as a service grows**. Examples of toil include applying database schema changes, reviewing non-critical monitoring alerts, copying and pasting commands, etc.

### Steps to eliminate toil

- Step - 1** **Toil identification:** Capture all the activities occurring in the application, and filter them to identify the toil
- Step - 2** **Toil analysis:** Perform toil analysis to identify solutions
- Step - 3** **Toil elimination:** Devise a plan of attack and develop solution scripting to eliminate the toil

### Recommendations

#### During toil identification process:

- Conduct a **workshop with the support team for 1-2 hours everyday** for toil identification.
- Perform time and frequency modelling** for each activity (determine the time spent on the activity and the frequency of its occurrence- either daily, weekly or monthly)
- Based on the feedback, **categorize the activities into toil**

#### During toil analysis process:

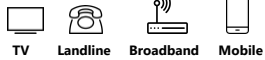
- Prioritize the toils based on i) Amount of time; ii) Frequency; iii) Type of toil.
- Rank the toil type based on its severity. This is **critical to devise an action plan** and manage BAU activities. Manual – Rank 2 | Repetitive – Rank 1 | Automatable – Rank 2 | Nontactical/Reactive – Rank 3 | Lacks enduring value – Rank 4
- Identify plan of attack (solution)**- collaborate with the dev team to identify a **high-level solution using T-shirt size estimation** technique.

#### During toil elimination process:

- Perform impact documentation and get it signed-off from dev team, business, IT and projects team.
- Implement the **solution scripting in chunks and avoid big bang scripting**.

# Use case: Toil elimination in DSPs' content publishing activity using AEM scripts, saves time spent on it per month by 15-20%

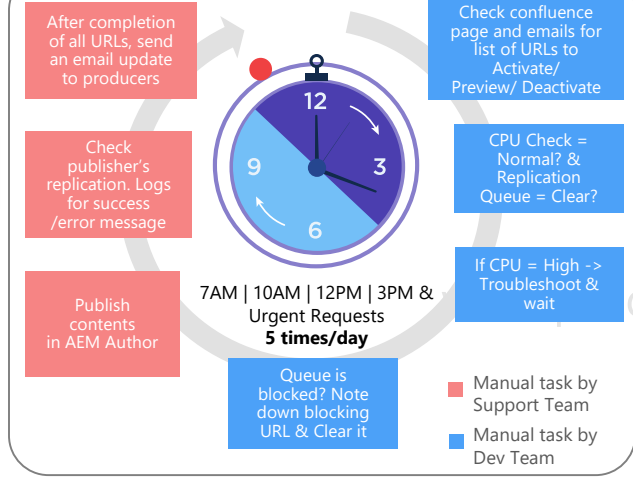
## DSPs' offerings



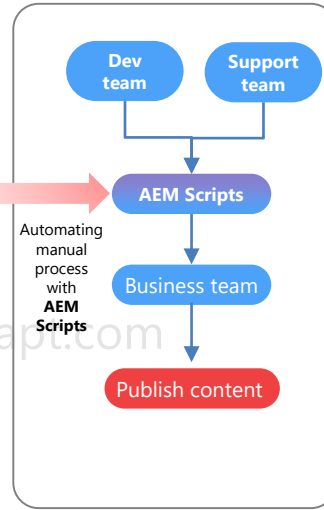
## Types of content to be published

- Update new product information (E.g., phones, broadband services, etc.)
- Change/update price
- New deals and offers (E.g., Black Friday deals, Christmas offers, etc.)

### Traditional approach in which DSPs manually execute change management for content publishing, which leads to toil



### Automate publishing using AEM scripts



## Challenges in change management in the traditional content publishing process

- Dev team and support team must get involved manually to execute the change and publish the final content.
- Large number of urgent change requests come from the business team. This increases the number of manual activities for the dev and support team.
- Need for high number of support engineers.
- 8-10 hours spent by support team every day for executing the content publishing activity.

## Recommendations

- Dev and support team should collaborate to **write Adobe Experience Manager (AEM) scripts**, which automates the manual process for publishing activity.
- Implement AEM Workflows to automate the activities that are performed on (one or more) webpages and/or assets.
- While introducing a new type of content on the website, **reuse an existing template which can be further fine-tuned using CSS**.
- **Use the paragraph system** (parsys/iparsys) on the new webpages, which will enable the business team to drag and drop or add other components or scripts at page level.

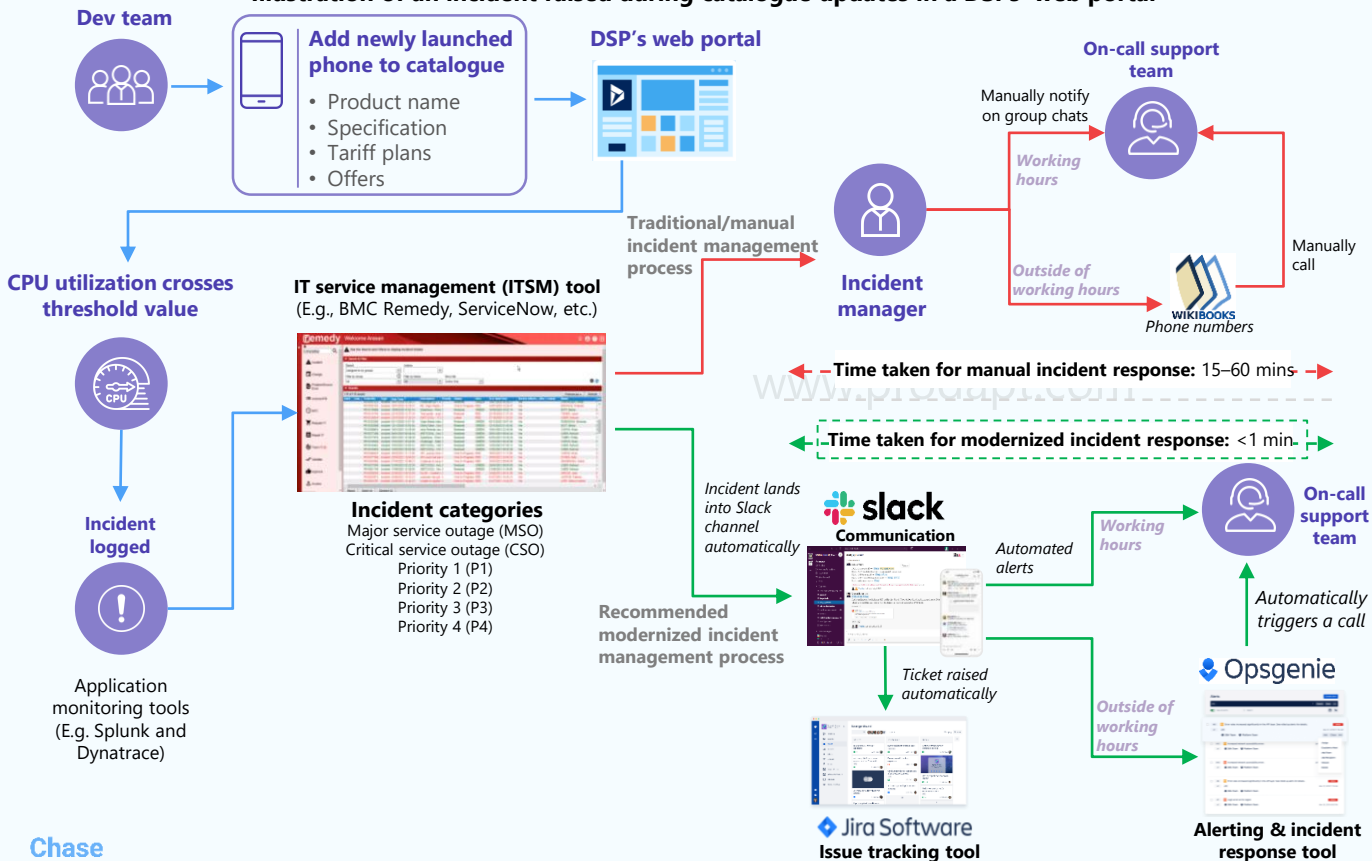
## Benefits

- The business team can automatically preview and publish the content using AEM scripts and **does not have to rely on the dev & support team** anymore.
- Thus, the business team **saves 15-20% of hours** taken per month in publishing activity

# Modernizing the incident management process using alerts and on-call management solution reduces the time taken for incident response

1 2 3 4

Illustration of an incident raised during catalogue updates in a DSPs' web portal



- The traditional incident management process requires manual intervention by the incident manager to notify the support engineers. Typically, the time taken for incident resolution in such a scenario is 15-60 mins.
- Modernize the incident management process using modern communication platform and automated alerts**, thereby reducing the time-taken for incident resolution to less than 1 minute.

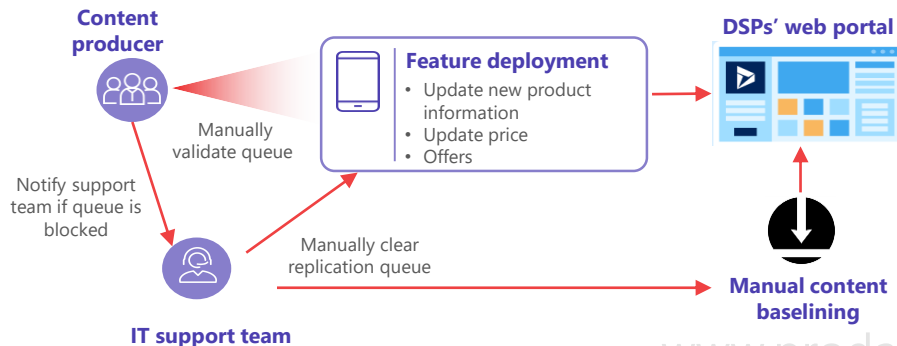
## Recommendations

- Integrate Slack Communication platform** with the ITSM tool, to enable automated notification of incidents to the support engineers, during the working hours.
- Integrate Opsgenie tool** with the Slack platform to enable automated call-alerts to the support engineering, during the non-working hours.
- Use work management tools such as Jira Software**, which would enable incident managers and support engineers to keep a track of the issues and the tickets raised.

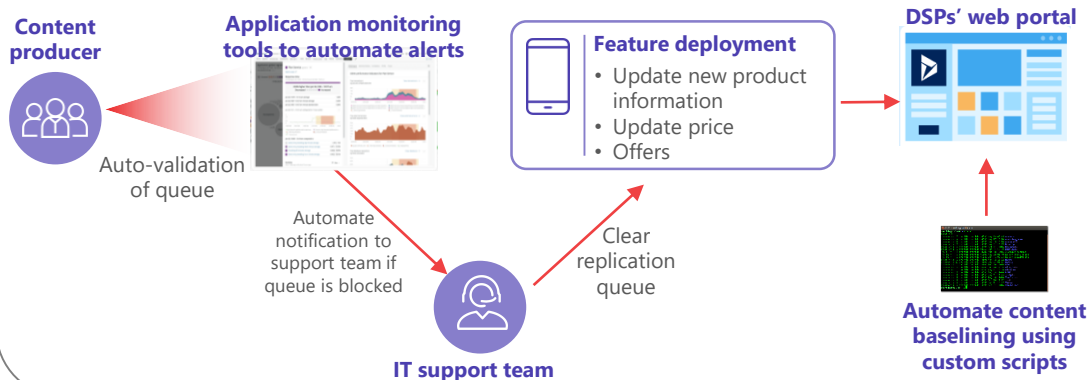
# Improving production deployment cycle by 25% in DSPs' digital platform using automation

1 2 3 4

## Traditional production deployment cycle in DSPs' web portals



## Automated production deployment cycle in DSPs' web portals



## Challenges

- There is lack of alert mechanism to notify the issue occurring during content publication.
- Content producer must manually validate the queue and notify the support team that the queue has been blocked.
- Manual intervention increases the efforts of the support engineers by 5-6 hours every day.
- Support team must manually baseline the content, wherein a software package is shifted from one environment to another environment.

## Recommendations

### Implement application monitoring tools to automate alerts.

Use software tools such as **New Relic** or **Dynatrace** to search, monitor, and analyze the data and automatically, generate alerts, and visualizations.

### Automate content baselining using custom scripts

- Build a custom automation script (or tool) such as **Linux shell scripting** to automate the repetitive tasks such as file manipulation, program execution and printing text.
- The **following key tasks should be automated** using customer scripts:
  - Validation/comparison of existing and new content in terms of file name and size
  - Counting the number of files
  - Recognizing the file format
  - Back-up of file from one location to another
  - Publishing the baseline version

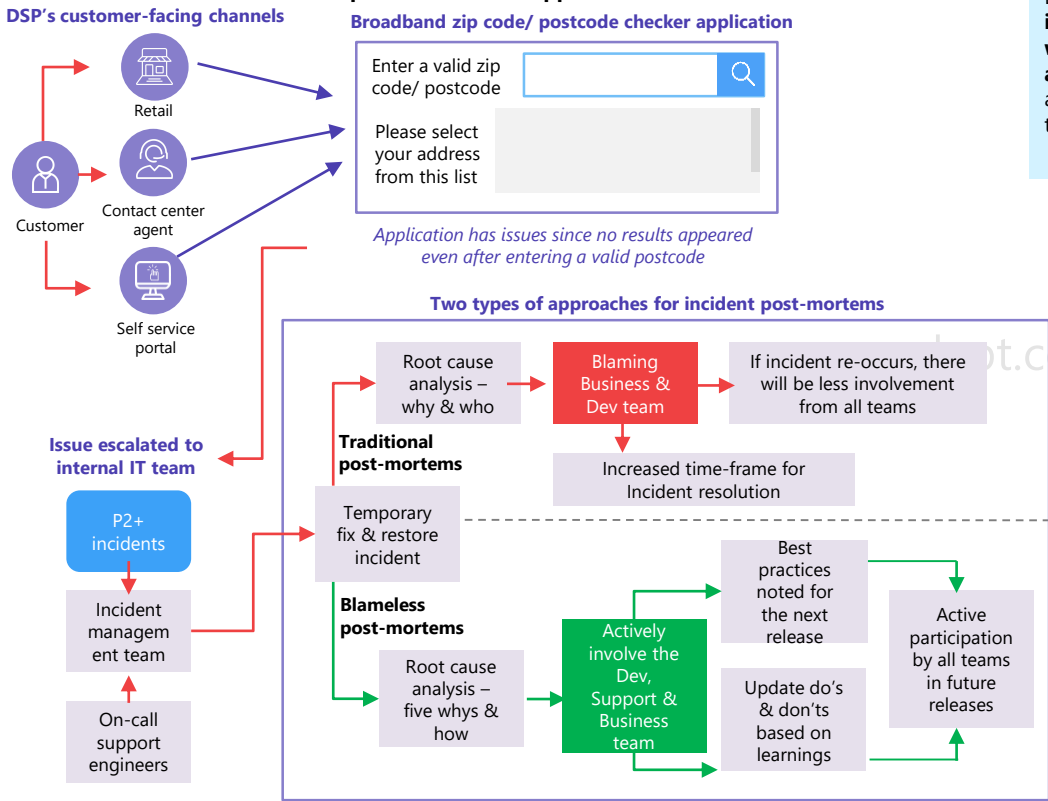
## Benefits

- The application monitoring tools automatically raise tickets when the production queue is blocked, even before the user reports it. This **improves the deployment cycle by 25%**.
- Custom automation tool **saves 25-30% hours of FTE efforts** every week.



# Increasing DSPs' IT operational efficiency through **blameless postmortem culture** in the incident management process

**Example to illustrate the escalation of P2+ incident due to an issue in DSP's broadband zip code/postcode checker application**



Blameless post-mortems **investigate incidents without making accusations** or blaming a particular person or team.

- Benefits of blameless post-mortem culture:**
- Create an open, always-improving culture of learning
  - Decreases the chances of ignoring incidents for fear of blame
  - Enhance support and communication
  - Accelerate time-to-market of required changes

## Recommendations

- During the root cause analysis (RCA), **do not focus on who** caused the incident. Shift the focus on why, what and how.
- Perform **five why analysis**, which is an effective tool to uncover the root of the issue.
- The RCA checklist should involve the following:
  - **Time travel analysis:** investigate what happened 48 hours before incident and 24 hours after the incident. Example: patch updates, new user access, changes in system, etc. Analyze the rationale behind the action taken post the incident.
  - **Business impact analysis:** evaluate how many tickets were raised by the user, how many number of users were directly and indirectly impacted.
  - **System impact analysis:** investigate how many upstream and downstream systems were impacted, number of job failures & its impact.
- **Be proactive:** having an open communication about the issue creates a 'mistake-friendly' approach to resolve incidents.
- Involve the development, support and business team in every step of the RCA and restoration of the incident.
- Use **incident management tools** such as **Jira scrum board** to record, manage and track every incident. It would facilitate a smoother post-incident review.

# Benefits achieved by a leading DSP in Europe after implementing the SRE principles

Implementing the **4 key enablers** as discussed in this insight, resulted in the following benefits.

↓ **75%**  
reduction in P2+ incidents making the system more stable & reliable

↓ **25-30%**  
reduction of hours per month in incident handling time due to toil reduction in package deployment

↓ **15-20%**  
reduction of hours per month in publishing time using amended AEM process

↑↑↑ **Faster time-to-market**  
of application releases, feature changes and updates on DSPs' online intake channels (web portal, e-commerce and other digital platforms)

↑ **Increased**  
reliability and stability of IT operations





# THANKS!

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# THANK YOU!

