Now on Now:

How a proactive Customer Support strategy can help prevent and deflect cases and speed up case resolution

ServiceNow is using AI to deliver a fast time to relief for customers

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Proactive customer support is the future

ServiceNow has seen a steady 30% annual corporate growth in the past few years, resulting in a need to scale its support team and adopt a proactive support strategy—from our cloud support operations through our customer support activities.

To do this, we needed to identify the areas where we could truly change the customer experience to both help prevent cases from occurring and assist with a faster resolution over a growing infrastructure and customer base. We wanted to tap into emerging technologies such as AI and machine learning to shift out of reactive mode. We targeted three primary areas for support improvement:
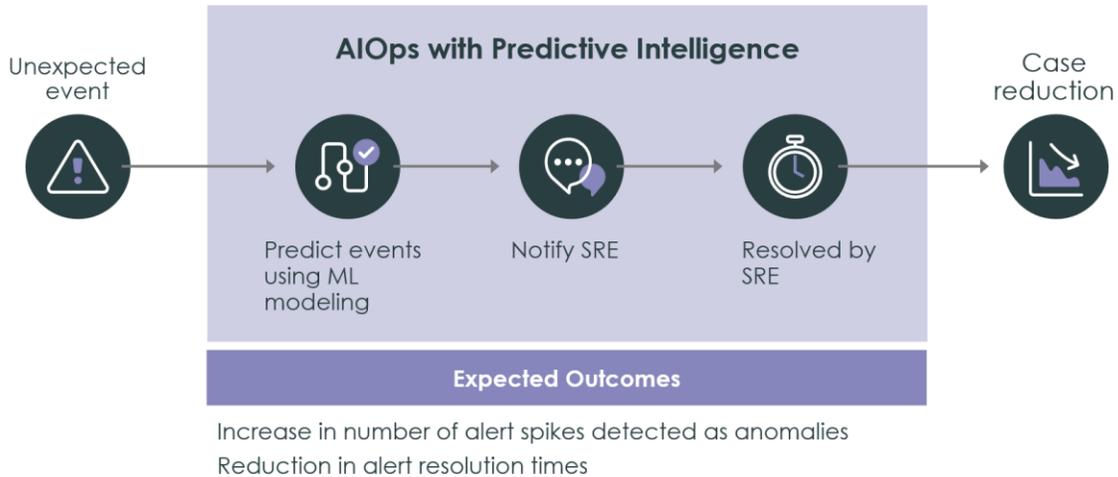
- Proactively monitor instances to help find and resolve issues before customers are aware of them
- Use AI and search tools to surface relevant knowledge and diagnostic information so technical support engineers (TSEs) can resolve issues more quickly
- Remove the root cause of known errors to help prevent their reoccurrence

Proactively monitor instances

ServiceNow is committed to aggressive and sophisticated proactive system monitoring to assist with continuous availability of our cloud services. Using the same platform capabilities and ServiceNow® IT Operations Management (ITOM) products available to customers, we monitor our cloud environment and watch for issues across our entire stack, including networking, hardware, virtual machines, databases, systems, and services, as well as all our hosted platforms and applications.

Enterprise-grade availability and health are paramount to our success; simple threshold-based alerts do not meet this demand, often being time-consuming to analyze and reactive in nature. Monitoring was one area we knew where we could use AI to scale and be more proactive. For example, we may see incremental increases in operation execution time for a particular process or query; being able to recognize these patterns is a great indicator for future performance degradation in customer instances, which can result in poor end-user experience or even downtime.

Predictive alerting

AIOps with Predictive Intelligence

Unexpected event

Predict events using ML modeling

Notify SRE

Resolved by SRE

Case reduction

Expected Outcomes

Increase in number of alert spikes detected as anomalies

Reduction in alert resolution times

Predictive algorithms compare baseline customer usage metrics against historical customer data and search for pattern deviations. To determine if the alert is actionable, we search for anomalies, then transition them into alerts as needed. The resulting data is fed back into our model, helping us improve our prediction capabilities.

Once an actionable alert is triggered, workflows identify the root cause as well as the severity of the issue for certain scenarios. The system opens a customer case and automatically initiates scenario-specific triage against the potentially impacted services. This also alerts the Technical Support team, often before the customer or their users are aware there is an issue.

In situations where there is a proven solution for a customer case, we use AI to automatically determine the appropriate course of action and execute automation which implements the remediation while providing updates on progression, details of the solution and closure of that case. This reduces the demand on engineering resources to perform repetitive operations, freeing them to better use their talents and engage in more value-added activities.

We've seen a 2.9X increase in time to relief for customers when we use automated workflows to identify customer issues.
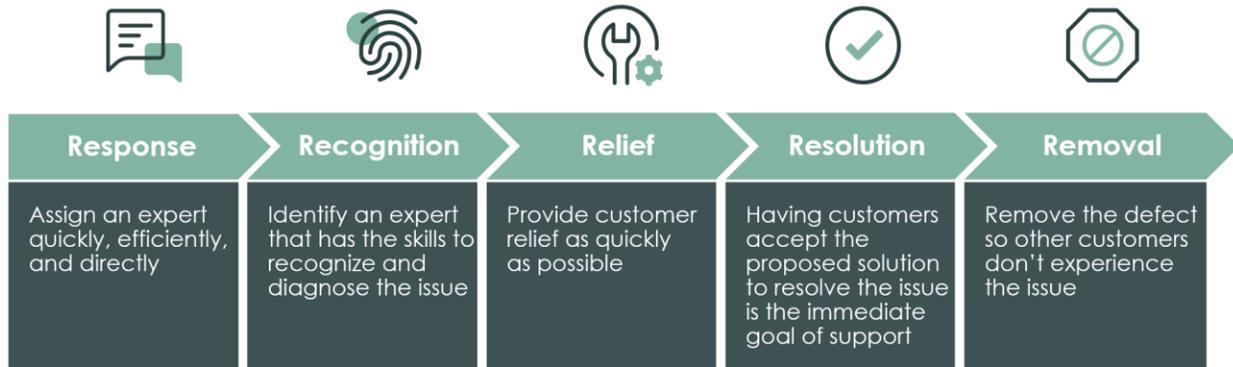
Use AI to surface relevant information

We adopted a five-phase—or 5R—approach to drive proactive case management. The workflow begins with a quick **response** to customer issues and the efficient assignment of a subject matter expert to **resolve** the issue.

The assigned expert has the experience to **recognize** and diagnose the issue, then provide **relief** as quickly as possible, including proposing a **resolution**. We track defects using ServiceNow's problem / change management process to **remove** defects to avoid a wider impact. An automated workflow helps us resolve issues before they become cases and if they do become cases, resolve them as quickly as possible. We do this by using ServiceNow

![servicenow]

Customer Service Management and the Now Platform®.

Fast response, quick resolution, and high satisfaction

Response	Recognition	Relief	Resolution	Removal
Assign an expert quickly, efficiently, and directly	Identify an expert that has the skills to recognize and diagnose the issue	Provide customer relief as quickly as possible	Having customers accept the proposed solution to resolve the issue is the immediate goal of support	Remove the defect so other customers don't experience the issue

In the past couple of years, we've made a tremendous investment in AI to help improve the support process so questions can be answered more quickly, and help cases resolve faster. AI and machine learning are critical to this approach.

For example, we wanted to collect and share relevant knowledge and diagnostic information so TSEs can resolve issues more quickly. Our Global Technical Support team uses Knowledge-Centered Service (KCS®)[1] to streamline the support workflow for customers.

ServiceNow Predictive Intelligence reduces case resolution time by automatically surfacing contextually relevant information in ServiceNow Agent Workspace, including similar cases, knowledge articles, and related major cases. These are attached to the case for reference.

Every time they close an issue, our TSEs capture what they have learned in the knowledge base so it can be referenced both by our customer and internal teams if this issue is encountered in the future. The results prove that the strategy works: cases with an attached KB article were solved up to 45% faster.

Role of AI in case management

ServiceNow Predictive Intelligence has given us many powerful, native AI capabilities, including classification, similarity, clustering, and regression models. These models help our customers find information more readily, reduce resolution time for agents, and help managers and administrators quickly identify trends to drive service improvements.

- **Classification model**: The system uses machine learning to accurately categorize, route, and assign cases based on past case-handling experience. This reduces task resolution time, the number of interactions, and manual errors in categorizing and assigning the cases.

- **Regression model**: Machine learning is used to estimate the time it takes to resolve a case by analyzing real-time factors, such as staff availability and geography. Under implementation, TSEs will be able to use it to help proactively prevent SLA breaches and help set customer expectations around case resolution time.

[1] https://library.serviceinnovation.org/KCS/KCS_v6/KCS_v6_Practices_Guide/0B0

- **Similarity model**: The system looks for similarities between diagnostic data from a new incident and a training data set to quickly surface relevant information based on previously solved cases. This model is used during case resolution. A TSE can select one of three options —case, PRB, or KB—and the model will bring back similar objects based on the title of the case. This enables TSEs to quickly provide the best resolution for an incoming case. This capability is expected to be pushed out to customers in mid-2021.
- **Clustering model**: Unsupervised machine learning identifies patterns by continuously segmenting and grouping similar items, such as error codes, to identify major cases quickly. The system automatically assigns these similar items to existing clusters as new records come in. These are re-clustered at periodic intervals. The system works off the latest data to enhance accuracy.

With the launch of the Quebec release, other new features will drive significant improvements in customer support. For example, once proactive monitoring detects a performance issue, our system will auto-open a case on behalf of the customer, interrogate the customer environment for diagnostic data, and attach the data plus any troubleshooting steps into the case file. All the relevant data is ready for our TSEs to reference, speeding up the time to resolution.

Another exciting new AI use case helps customers tap into expert guidance to resolve their instance issues without waiting for a support engineer to be available. Customers simply download the Instance Troubleshooter app from the ServiceNow Store. With a few clicks, they run diagnostics on their own environment and identify common issues, such as those with clones. The app proposes remediation instructions; our customers can fix the issue without having to open a case. We plan to have approximately 100 use cases available for customers to access by the end of 2021. Instance Troubleshooter puts the power of the platform in customers' hands by giving them the ability to create their own alerts based on metrics they select.

Remove the root cause of known errors

In our fast-growing cloud environment, we needed to do something different to fix product issues once, instead of multiple times for each customer instance. Under the traditional process, a customer would report an issue; Technical Support resolves it reactively. In many cases, the issue reoccurred because the root cause had not been fixed. This result: one issue was being resolved multiple times.

Integrated Service Management
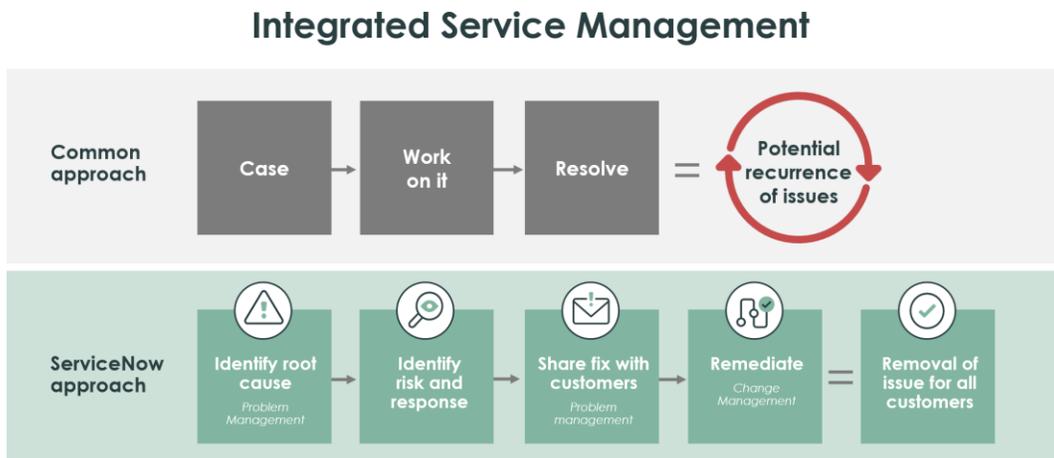
We developed an escalated problem resolution process where we identify the root cause then take the time to assess the risk and architect the appropriate response. We use ServiceNow Problem Management and Change Management to help ensure the issues are permanently tracked and fixed.

A two-pronged approach gives us the flexibility to select the most appropriate approach for remediation and avoid repeat occurrences. In most cases, the issues are fixed through our scheduled software patching process, where updates are part of our regular process. We use a targeted remediation process for high-priority or high-impact issues, such as security.

Once we identify how to resolve the issue, we use a read/write process to push patches onto customer instances, often before they know it's an issue. In 2020, we generated 68,500 instance write audits as part of this process, and sent 65,000 direct emails and more than 10,000 warn and block codes to customers in response.

Two types of remediation
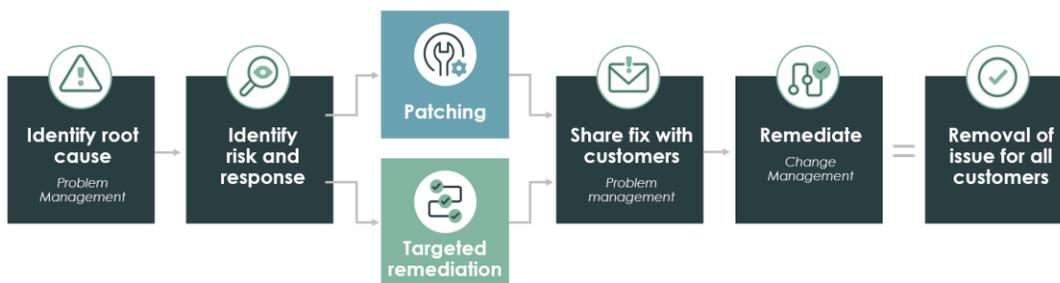
If we find an issue that is a product defect or in the physical infrastructure, we collaborate with other teams, such as Global Cloud Services or Product Development, to design a permanent solution, and, where appropriate, create a knowledge base article.

With these measures, we estimate our support organization offset almost 145,000 cases in 2020, saving almost $47 million.

The future is AI—and intelligent search

As ServiceNow continues to grow, our cases increase. In Q4 2020, our case volume grew 13% while our time to relief decreased 45% in the same time period. Proactive monitoring, KCS adoption, and an integrated remediation process has contributed to these results. AI Search, a recent addition to the Now Platform, is helping the Customer Support team provide solutions 5X faster and nearly 3X times more relevant.

Workflows enable us to be proactive, especially those that help ensure our Global Cloud Services and Global Technical Support functions are focused on the same result: providing customer relief proactively and as quickly as possible.

Our roadmap calls for further investments in AI and other workflows so we can resolve issues before they impact our customers. AI enables self-service and improved search so customers can resolve many issues on their own. And when a case is opened, AI is helping us speed up the time to resolution.

By improving the customer search feature—whether the request is made through a chatbot, portal, or browser—we can create a path to faster, proactive issue resolution. The ability to gather and deliver targeted knowledge is essential to a better customer experience.

About ServiceNow

ServiceNow is making the world of work, work better for people. Our cloud based platform and solutions deliver digital workflows that create great experiences and unlock productivity for employees and the enterprise. For more information, visit: http://www.servicenow.com/.

Now on Now is about how we use our own ServiceNow solutions to work faster, smarter, and better. With Now on Now, we're achieving true end-to-end digital transformation. To learn more go to the Now on Now website.