



89 Fifth Avenue, 7th Floor

New York, NY 10003

[www.TheEdison.com](http://www.TheEdison.com)

# HPE SW Thought Leadership Series

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**ChatOps - a Collaboration of People,  
Process, Tools and Automation**

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Produced by: Harold Kreitzman, Analyst; Barry Cohen, Chief Analyst and Editor-in-Chief; Manny Frishberg, Editor

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## Executive summary

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Hewlett Packard Enterprise asked Edison Group to write Thought Leadership articles to address how HPE ITOM is meeting some of hybrid cloud's greatest challenges for operational management.

The sources of the information were in-depth interviews with HPE ITOM executives, supporting product documentation and Edison's analyst's insights and observations.

This article explores the opportunity for and benefits of ChatOps, a conversation-driven collaboration model based on chat applications and tools for real-time communication and task execution among and between members of IT operations and application development teams. ChatOps connects people, processes, tools and automation in an efficient manner enabling teams to collaborate more effectively on operational and issue resolution.

The sections in this report are:

- The case for chat-based collaboration in IT Ops
- What's needed to achieve the benefits of chat-based collaboration in IT Ops
- ChatOps – what it is and how it helps
- ChatOps for IT Ops from HPE ITOM
- Use Cases – several use cases demonstrating real benefits from HPE ChatOps integration with ITOM
- ChatOps for IT Ops: Increase efficiency, speed and responsiveness

### ChatOps Benefits

*ChatOps allows teams to easily and more naturally communicate with each other.*

*ChatOps enables participants to solve problems more effectively and efficiently.*

## The case for chat-based collaboration in IT Ops

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Traditionally, IT Operations (IT Ops) and Application Development (Dev) teams communicate through myriad tools and processes, including email, videoconference, chat, and telephone. This often results in disjointed and incomplete capture of information and prevents individuals from collaborating in a logical, efficient fashion.

When an immediate need arises to gather a team of knowledgeable and empowered personnel resources, the traditional methods to identify, schedule, and conduct a meeting using a combination of phone calls and email are highly inefficient. Teams typically use pre-determined conference call-in numbers and, in some cases, more sophisticated platforms to allow screen sharing.

While this appears to be an effective solution, it assumes that everyone has access to the tools, information, and analysis needed to properly assess and resolve developmental and operational issues. This is usually not the case. In fact, a truly collaborative environment is not possible since tools and information are typically not integrated with the conference call/screen sharing environment. Ultimately this often leads to a disconnect within the group tasked with resolving the problem due to a lack of transparency, visibility and off-line conversations.

*A recent operational review of a global banking institution suggested that the “disconnect” organizationally and collaboratively encouraged parallel resolution efforts which ultimately caused more issues, extended the time to identify the problem, and significantly extended the time to resolve the problem.*

*Specifically, a mid-level operational resource in the Midwest worked independently from the New York-based operations team to resolve the issue. The Midwest resource resolved the issue, but did not inform the New York team on a timely basis, so they continued to investigate. In the course of their investigations, they reversed the fix.*

*In addition, the disconnect between the geographically dispersed operational support organizations made it impossible to identify the root-cause of the problem to prevent it from recurring in the future. Ultimately, this led to decreased consumer confidence, financial penalties and lost revenues.*

## What's needed to achieve the benefits of chat-based collaboration in IT Ops

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Using the real-life example outlined previously, it is clear what type of collaboration is needed to improve IT efficiency, speed and responsiveness:

- **Self-Empowerment.** The ability to initiate a virtual meeting by member of a team when necessary.
- **Elimination of Operational Silos.** A collaborative environment that crosses organizational boundaries and connects informed and appropriate resources.
- **Collective Awareness Through Real-Time Collaboration.** Participants need to be able to view all relevant information, data, analysis, and actions taking place and contribute where needed.
- **Tool Integration/Automation.** Integration of tools and capabilities that are used to collect and analyze data, investigate root causes, and resolve operational issues should be fully integrated with the collaboration platform. This is necessary to make operational response more efficient.

## ChatOps – What it is and how it helps

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A collaborative process popularized by GitHub, ChatOps directly addresses many collaboration and operational response issues. Using chat-based collaboration platforms such as Slack, HipChat or Flowdock, Dev and Ops teams working together resolve incidents and shorten feedback loops in real time; using synchronous and asynchronous communication channels, automating tasks, and at the same time maintaining a time-stamped log of conversations, events, and notifications.

ChatOps also improves people-and-machine collaboration by automating data gathering, analysis and remediation tasks. At the core of ChatOps are “chatbots” (chatter robots). A chatbot is a service designed to simulate an intelligent conversation with one or more human users and even with other chatbots. Chatbots are flexible, can be made smart through rules, machine learning or artificial intelligence and are programmed to do many tasks that connect people with the information they need and the tasks they need to perform.

For example, chatbots can gather information, leverage analytics and machine learning, or automate the response to incident remediation.

ChatOps has been proven over the last couple of years through wide adoption in development teams executing in an agile, DevOps model. ChatOps adds value by providing a *real-time, contextual, data-driven, and action-oriented* collaboration platform – with visibility, information persistence and traceability. ChatOps overcomes the challenges of traditional-based communication methods and adds capabilities that bring collaboration to a higher level. Specifically, ChatOps is designed to accomplish the following:

### Self-Empowerment

ChatOps allows any team member to initiate a collaborative session. Team members can gather the information they need and execute commands through ChatOps’ ability to connect multiple operational monitoring and remedial tool sets.

### Elimination of Operational Silos

As an enterprise-wide tool, ChatOps crosses organizational and geographical boundaries. It standardizes communication across the organization. ChatOps enables and fosters a team-oriented approach through true collaboration where everyone can participate by sharing data and insights.

## **Collective Awareness through Real-Time Collaboration**

ChatOps captures and displays in real-time every action and conversation, visible to everyone involved. As such, it prevents duplicate and/or parallel efforts. Everyone on the Chat Session learns as more information is collected, presented and acted upon.

The team can use the transcripts in the post-review process to enhance remediation processes and as a learning tool for new participants.

## **Tool Integration/Automation.**

ChatOps integrates with operational monitoring and administrative tools to provide secured access to a standard set of tools and data repositories. Automation in the form of Chatbots provides a more efficient and effective way of executing standard sets of commands, which will then provide a set of expected results. Chatbots provide a standard way of integrating changing or emerging collaboration tool vendor offerings.

## ChatOps for IT Ops from HPE ITOM

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HPE ITOM has integrated and continues to enhance ChatOps capabilities into all ITOM suites. This enables IT operations teams to address a broad range of typical use cases such as incident resolution or change deployment. It also helps IT Ops and Dev teams to handle issues that arise in continuous delivery of applications and services.

Ultimately, ChatOps is meant to provide assistance to both IT Ops and Dev where diverse teams need to collaborate quickly and efficiently on troubleshooting, production issues or quickly pushing new releases into production.

Specifically, HPE ITOM ChatOps capabilities are collaboration-tool agnostic and easily integrate with existing collaboration tools including Slack, HipChat or Flowdock. HPE ITOM chatbots support integration with collaboration tools to provide greater flexibility and extensibility with existing and emerging vendor solutions.

HPE's use of chatbots enforces consistency through standardization of language, technology and software packages, which make it easy for practitioners to adopt. HPE ITOM includes a comprehensive range of IT chatbots across the software portfolio.

The automation chatbots are quite straightforward. They recognize and interpret commands. In a simple sense, you can set up a pretty rigorous syntax that the chatbots will recognize. Then, the chatbots will execute a script that can be handed off to another chatbot that will then communicate with the chat system.

HPE ITOM's vision with "bot" technology is to connect a broad range of disparate enterprise IT Operations capabilities into one interactive platform. The bots enable chat participants to interface real-time with IT operations software. The only limits are imagination and creativity, as opposed to the infrastructure-imposed limits.

ChatOps from HPE ITOM is a highly flexible and responsive enterprise-grade solution that:

- Delivers high quality customer experience
- Meets security and compliance requirements
- Supports big data analytics with its data storage/data structures
- Is extremely scalable with its pre-tested reference architectures
- Provides a complete, end-to-end solution with a single pane of glass approach.

## Use Cases

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The following use cases illustrate how ChatOps can be used effectively to improve communication and increase operational efficiency and effectiveness.

### Application Incident Response

When a business user reports an issue with the mobile application, the team uses ChatOps to quickly open an appropriate service ticket, and then identify, diagnose and resolve the issue. Through ChatOps, they pull experts into the chat channel to assess and fix the problem. Various tests are run to check system performance and diagnose the root cause of the issue. As needed, chatbots collect relevant data, run diagnostic analysis, and execute operational tasks to fix the problem. When the problem is resolved, the service manager can post a copy of the transcript from the chat room into the ticket, and then close the ticket. The chat transcript is a running record of all actions to remediate the problem.

### Service Catalog Automation

ChatOps automation capabilities can also improve the efficiency of typical IT operations requests in the creation of virtual machines (VMs) for development. Typically, developers request VMs, whether they are hosted internally or by a cloud provider such as AWS or Azure. Once the VM is generated it is delivered to the developer. This process takes a fair amount of time, so companies leverage automation software to do it much faster.

With chatbots, a developer initiates a chat conversation with the operations group and requests a VM. In the chat, a pre-developed VM creation bot (@cloudy for example) is initiated by saying “@cloudy, give me a medium sized VM.” The @cloudy bot generates the VM on the platform of choice, whether it's internal or external, ensures that it's configured correctly, and then delivers it to the developer.

From the developer's perspective, it is a significant time and effort saver. The developer does not have to search the IT service catalog, and then go through the internal process of requesting approvals and operations support. They just ask for what they want and get it back through an easy-to-use interface.

## University of Pretoria, South Africa Case Study

At the University of Pretoria, South Africa, 26 people collaborate through HPE's Service Management ChatOps capabilities.

The university experienced a major incident: the exam system was down, just when it was time for students to take exams. With the real-time urgency to the issue, numerous people had to work together to get the problem resolved.

The team later reported that by using ChatOps this was one of the *least* stressful emergency incidents in which they had ever been involved. Everybody that needed to be involved was included in the chat. When a new person joined the on-going incident remediation effort, they quickly scanned through the chat log and caught up with everybody else. There was no need to stop the ongoing discussion and bring somebody up to speed. Information was easily obtained and quickly shared with everyone on the chat.

Chat participants tend to be both more concise and in many ways, more engaged with each other when communicating in this manner. This can significantly reduce the stress involved in these types of situations as well as accelerate incident resolution

## ChatOps for IT Ops: Increase efficiency, speed and responsiveness

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IT needs to match the speed of the business. To accomplish this, IT Ops has to increase efficiency, improve speed and be more responsive. IT can make this happen with better collaboration capabilities, standardized operations monitoring and administrative tool sets, and automation. IT also needs to find a way to cross organizational and geographical boundaries.

Thousands of DevOps teams have realized the benefits of ChatOps. IT Ops is the next logical area to leverage ChatOps. All HPE ITOM suites provide ChatOps capabilities across the most popular collaboration platforms.

ChatOps from HPE ITOM provides effective collaboration capabilities using existing collaboration tools, integrates with third-party operational tools, and eliminates manual efforts through the use of chatbots.

ChatOps is an enterprise grade environment that provides a high-level customer experience, incorporates security/compliance requirements, offers a high degree of flexibility, scales upward as your organization grows, and stores data in a format to support big data analytics. It is an end-to-end collaboration/issue remediation solution with a single pane-of-glass approach.

It works, and it works well. In fact, HPE IT uses ChatOps in its IT operations environment.

## How to get started with ChatOps from HPE ITOM

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ChatOps is a way to change the organization's culture by encouraging cross-organizational collaboration. As such, it will be difficult to implement from the top down.

The Edison Group recommends a bottom-up approach, starting with a few, key, visible application development projects and/or IT Operational teams for a proof-of-concept (POC).

The idea is to generate and publicize success using ChatOps on a project by project, operational event by operational event basis. Once repeatable success has been achieved, it can be pitched on a department level. From there, it can be spread throughout a division and eventually wherever it is appropriate across the organization.

However, let's not get ahead of ourselves. Here are some key success criteria for a ChatOps project:

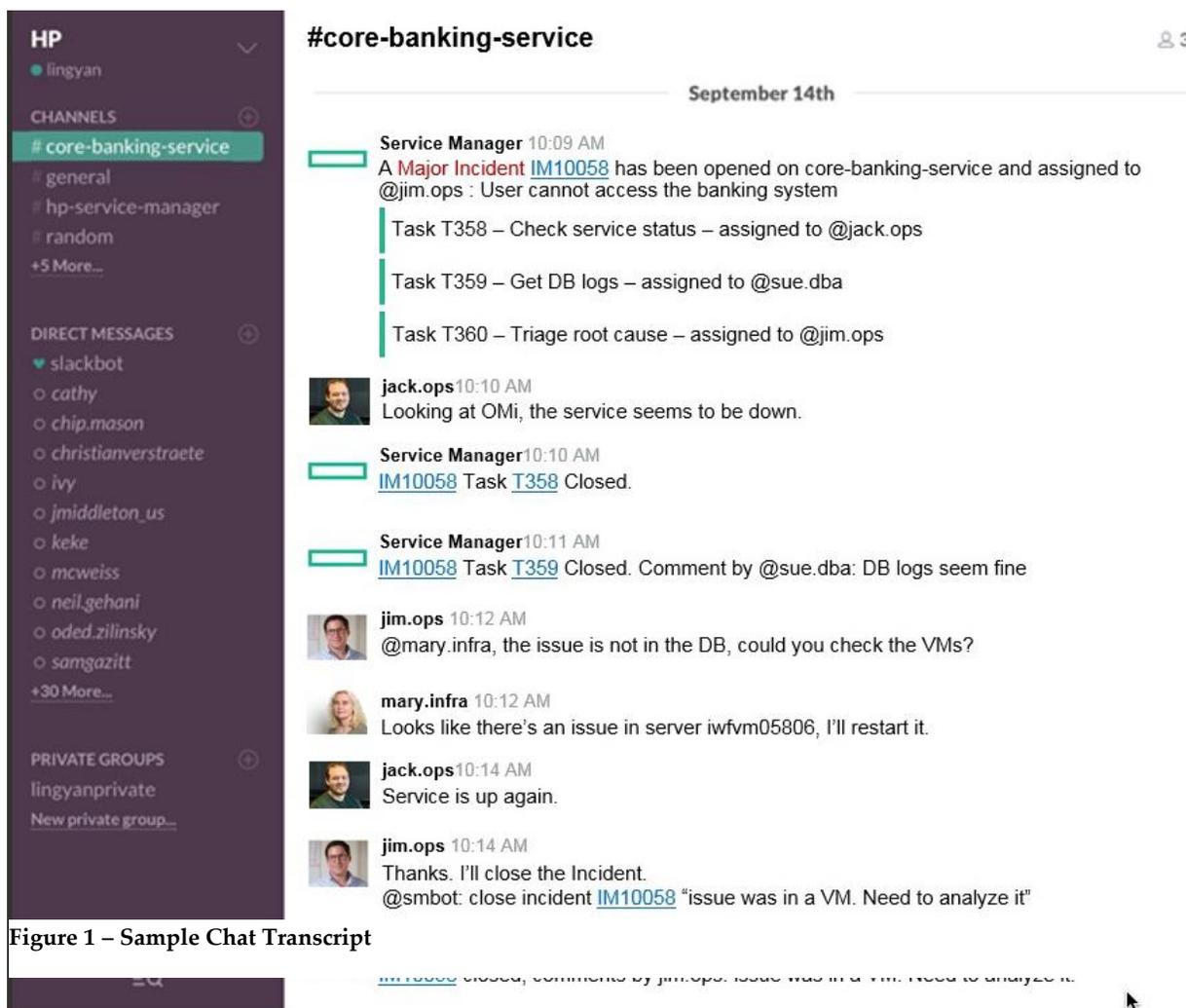
- Pick a program manager to manage and monitor the POC and participants
- Onboard an executive stakeholder, like the Director of IT
- Integrate collaboration tool with HPE ChatOps
- Train participants to use the tool set
- Develop, stage and test Chatbot scripts
- Hold collaboration test sessions regularly

Use ChatOps throughout the project and/or event. The program manager should keep track of the sessions and transcripts. After each session, the program manager should conduct review sessions to review what was done and to determine more effective ways of using the tools to work together to resolve issues or to build products.

## Real-life example of a ChatOps session

Figure 1 is the transcript from a sample chat (figure 1). While at first glance it appears no different from any other chat or group messaging app, there are significant differences. The first entry is from HPE Service Manager which outlines an incident, assigns various tasks to responsible individuals, and invites them to the chat.

The team then collaborates, performing various discovery and analytical tasks. Other personnel are brought in as needed. The issue is resolved and bot closes the ticket.



**HP**  
lingyan

**CHANNELS**

- # core-banking-service
- # general
- # hp-service-manager
- # random
- +5 More...

**DIRECT MESSAGES**

- slackbot
- cathy
- chip.mason
- christianverstraete
- ivy
- jmiddleton\_us
- keke
- mcweiss
- neil.gehani
- oded.zilinsky
- samgazitt
- +30 More...

**PRIVATE GROUPS**

- lingyanprivate
- New private group...

**#core-banking-service** 3

September 14th

**Service Manager** 10:09 AM  
A **Major Incident** [IM10058](#) has been opened on core-banking-service and assigned to @jim.ops : User cannot access the banking system

- Task T358 – Check service status – assigned to @jack.ops
- Task T359 – Get DB logs – assigned to @sue.dba
- Task T360 – Triage root cause – assigned to @jim.ops

**jack.ops** 10:10 AM  
Looking at OMi, the service seems to be down.

**Service Manager** 10:10 AM  
[IM10058](#) Task [T358](#) Closed.

**Service Manager** 10:11 AM  
[IM10058](#) Task [T359](#) Closed. Comment by @sue.dba: DB logs seem fine

**jim.ops** 10:12 AM  
@mary.infra, the issue is not in the DB, could you check the VMs?

**mary.infra** 10:12 AM  
Looks like there's an issue in server iwfv05806, I'll restart it.

**jack.ops** 10:14 AM  
Service is up again.

**jim.ops** 10:14 AM  
Thanks. I'll close the Incident.  
@smbot: close incident [IM10058](#) "issue was in a VM. Need to analyze it"

**Service Manager** 10:14 AM  
[IM10058](#) closed, comments by jim.ops: issue was in a VM. Need to analyze it.

Figure 1 – Sample Chat Transcript