How Cisco IT Uses Cisco Remote Management Services to Enhance Network Operations

Out-tasking contextual activities to trusted provider allows IT staff to focus on strategic projects.

Cisco IT Case Study / Network Management / Cisco Remote Management Services: The Cisco® IT group strives to make the best use of highly skilled staff by enabling them to focus on strategic programs rather than day-to-day monitoring and management of existing network infrastructure. In August 2005, Cisco IT formally engaged the Cisco Remote Operations Services (ROS) organization for Cisco Remote Management Services (Cisco RMS) to support the Cisco global foundation network, which includes the Cisco WAN, LANs, and wireless networks. Based on the positive results achieved by using Cisco RMS, in 2007 Cisco IT contracted with the Cisco Customer Advocacy (CA) department for additional IT management and consulting services. This relationship delivers ongoing benefits for Cisco and its customers, such as development of new support services. Cisco customers can learn from Cisco IT's experience when considering how their organizations might benefit from Cisco's network monitoring and management services.

> "Cisco's infrastructure has benefited from increased availability and stability, which yields real business value."
>
> **Guillermo Diaz, Vice President of Technical Services, Cisco IT**

BACKGROUND

Cisco relies heavily on its network, IT systems, and applications to run its business. Sales orders, supply-chain management, technical support, and business communications are all carried on a network and computing infrastructure that is managed by Cisco IT.

It might seem that the Cisco IT and Cisco CA departments would have little reason to work together. Cisco IT supports the internal networks, systems, and applications that are critical to the company's business operations. In contrast, Cisco CA is externally focused, providing technical support, monitoring and management services, and consulting that help Cisco customers operate and optimize their networks.

Cisco IT has many talented engineers, yet most of them had, over time, taken on day-to-day service support and operations roles such as responding to WAN access carrier outages, monitoring vendor repairs, responding to service quality issues, and more. In 2005, Cisco IT executives decided that it no longer made sense for IT engineers to handle the day-to-day support of the Cisco network. By out-tasking routine management activities, the IT engineers would have more time to spend on higher-value work, such as planning deployments of new technologies.

Cisco IT contracted with the Cisco ROS organization for limited network support through the Cisco Remote Management Services. This organization provides global customers with a variety of monitoring and management services for Cisco technologies. The services are delivered by a global team of engineers who use accepted industry practices, including IT Infrastructure Library (ITIL)-based processes.

EXECUTIVE SUMMARY

BACKGROUND

- Cisco IT supports internal networks, systems, and applications
- Cisco CA provides technical support, monitoring and management services, and consulting to Cisco customers

CHALLENGE

- Cisco IT staff were spending too much time on routine operations instead of new development
- The scale and scope of the Cisco network and IT operations meant challenges for identifying problem causes and solutions

SOLUTION

- Out-tasked monitoring of the Cisco network to Cisco RMS
- Expanded relationship between Cisco IT and Cisco CA
- New services for network support, management, and optimization

RESULTS

- Contribution to reduced number and duration of network outages
- Improved ability of Cisco IT to focus on strategic activities instead of daily operations
- Increased knowledge sharing that benefits Cisco customers with new products and support services

LESSONS LEARNED

- Identify the best way to use Cisco CA services
- Promote employee acceptance of change
- Define service objectives and processes
- Focus on service management

NEXT STEPS

- Continue to expand and evolve the relationship

CHALLENGE

To gain the most value from IT resources, Cisco IT distinguishes between core and contextual activities. “Core activities involve strategic IT programs and new technology, while contextual activities are repeatable, consistent, day-to-day tasks,” says Kevin Buchan, Cisco IT program manager. Examples of core activities for Cisco IT include the architecture and design for programs such as the implementation of next-generation wireless technologies, network admission control, and security. Examples of contextual activities are responding to outages on voice circuits that connect field offices, installing operating system patches, and supporting individual network devices.

Until 2003, Cisco IT managed both contextual and core activities. For example, IT staff took turns being on call 24 hours a day for a full week, once every six to eight weeks. When it was their turn, staff members would be paged in the middle of the night to respond to events such as voice circuit outages, which can occur more than 100 times nightly in certain countries. Each time, the engineer would have to get up and log a ticket with the service provider—whose support personnel might not speak the same language as the local support person. "The next morning, the engineers were expected to be productive at their ‘real’ job—which was to deploy new technology intended to increase operational efficiency or create a competitive advantage,” says Arthur Rosling, senior IT engineer for Asia Pacific voice operations.

Nighttime pager duty diminished the job satisfaction and productivity of employees and it complicated event tracking. When engineers fixed a problem in the middle of the night, they did not always document the event as an internal trouble ticket or support case. This lack of data made it difficult to identify problem trends.

SOLUTION

Monitoring and managing Cisco LANs and the Cisco global WAN backbone is an unrelenting and resource-intensive discipline. To free employees for more work on core activities, Cisco IT decided to out-task selected network monitoring and management activities for more than 4000 devices within the Cisco global LANs and global WAN, as well as VPN connectivity and voice service, for 300 Cisco sites and more than 160 Cisco extranet sites around the world. The service organization would need to offer the following capabilities:

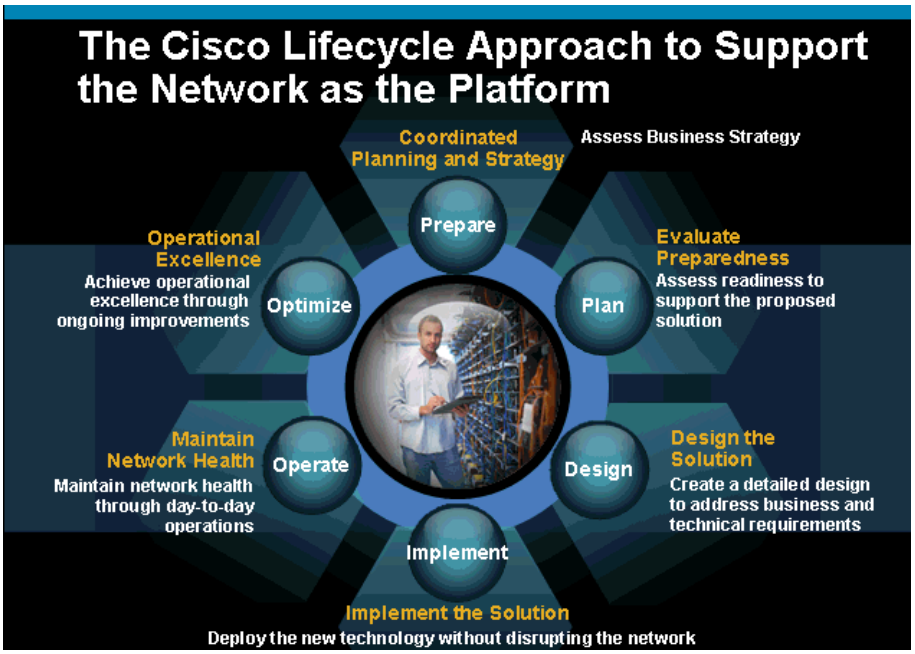
- A service-level objective (SLO) for availability, which is the top priority for Cisco IT, as well as root cause analysis and long-term fix resolution. In addition to tracking availability, Cisco IT wanted to know why problems occurred and what actions were needed to help assure they would not happen again.
- SLOs for mean time to notify, mean time to isolate, and mean time to resolve incidents.
- An operational agreement between Cisco IT and the service organization.
- 24-hour network monitoring and response.
- Ability and willingness to collaborate with the Cisco IT Tier 3 organization, which would provide knowledge transfer about new network technologies after managing them internally—usually for six months or longer.
- A single point of contact. Rather than trying to manage relationships with different partners for the WAN, routers, firewalls, and other technologies, Cisco wanted the simplicity of a single, trusted relationship.
- Tracking a sample of incident management events every month (for accurate priority assignment, thorough

documentation, adherence to good troubleshooting standards, and proper ticket closing codes).

- Monthly and quarterly reviews of service issues and statistics with key Cisco IT stakeholders.
- A commitment to customer satisfaction.

Cisco IT decided to contract for the Cisco Remote Management Services delivered by the Cisco Remote Operations Services organization, which Cisco acquired in 2004. Within the Cisco lifecycle strategy for delivering services—Prepare, Plan, Design, Implement, Operate, and Optimize (PPDIOO)—the Cisco RMS team takes responsibility for selected aspects of the operate phase. (Figure 1) "The operate phase is the core business of Cisco RMS," says Carlos Castano, a senior manager for Cisco RMS TelePresence services. "By taking responsibility for day-to-day operations activities, Cisco RMS frees Cisco IT to focus on more strategic activities, such as planning, designing, and implementing new technologies."

Figure 1. Cisco RMS Provides Key Services for the Operate Phase of the Cisco Lifecycle Approach



Cisco IT and Cisco RMS teams complement each other by applying their distinct core competencies to the Cisco network. "The core competency for Cisco RMS is running a 24-hour network operations center on a Cisco infrastructure," says Rich West, senior network engineer for network operations. "This frees Cisco IT staff to focus on their core competency, which is developing and supporting new technologies for Cisco's business operations."

In addition to managing day-to-day activities for the Cisco global network, Cisco RMS also resolves outages for all monitored equipment. For most of its clients, Cisco RMS is completely responsible for handling all outages. For Cisco, these services hold responsibility for all outages of priority two or lower, and assist with priority-one outages, although Cisco IT owns the case. "We are an extension of the Cisco IT group, identifying malfunctioning devices, fixing circuits, optimizing voice performance, and more. We free up Cisco IT to focus on their strategic enhancements that will create business benefits for the company," says James Jones, customer support engineer for Cisco RMS.

Deciding Which IT Activities to Out-Task

Duncan Mennie, European network operations lead for Cisco, helped to develop the processes for transitioning the network operations activities from Cisco IT to Cisco RMS. "We considered which tasks caused us problems, which would save us the most time, and which we were comfortable turning over to Cisco RMS," says Mennie. The team also wanted to choose functions that could be out-tasked globally. Following are factors the team considered when

deciding which activities to transfer to Cisco RMS.

Core or Contextual Activity

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>
> **Rich West, Senior Engineer for Network Operations, Cisco**

From the beginning, Cisco IT retained core activities while assigning contextual activities to Cisco RMS. "If an activity is measurable, repeatable, and consistent, and we can come up with a test plan to verify the deployment, then that activity is a good candidate to out-task," says Rosling. An example activity is patching the Microsoft Windows servers used for Cisco Unified Communications Manager—almost 50 servers in Asia Pacific alone. If Cisco determines that a new patch is necessary, Cisco RMS can install the patches on all global servers quickly, and as often as necessary.

When does a core activity become contextual? Each time Cisco adopts a new network technology, Cisco IT manages that technology until it can establish operational best practices—ordinarily within 6 to 12 months. "During that time, we engage Cisco RMS for limited activities, such as monitoring, so they can become familiar with the technology in our environment," says Craig Williams, director for Cisco Global Network Operations. "Later we transfer more tasks, then eventually we give them all monitoring and management responsibility for the product."

"For most of our customers, Cisco RMS manages new technologies so that customers can adopt them even if they do not have the internal expertise," says Castano. "In comparison, Cisco IT is a highly sophisticated customer that has the internal expertise needed to adopt new technologies. Unlike many Cisco RMS customers, Cisco IT prefers to manage new technologies itself for several months so its engineers can keep their knowledge and skills current. We tailored an agreement with Cisco IT, as we do with all of our customers, to meet its unique needs for managing new technologies."

Critical Environments

Cisco out-tasks noncritical (Tier 2) activities and some mission-critical (Tier 3) activities. The Tier-3 component that Cisco RMS manages is the Cisco global WAN backbone, which links more than 66,000 employees in more than 200 global sites with availability of nearly 99.999 percent.

Initially, Cisco IT also chose to manage noncritical activities that occur in the Cisco data center environment. "All tasks that occur in our data center are considered core, and although Cisco RMS has the capability to manage them—as it does for other customers—we made the decision to retain control of this area," says Mennie.

Maturity of the Technology

When Cisco IT adopts a new technology, management of that technology is always considered a core activity. After Cisco IT engineers have learned about the technology in depth and documented best practices, the technology becomes contextual and Cisco IT considers assigning it to Cisco RMS. For example, "When I joined Cisco, the network backbone was considered core, and now it is contextual," says Williams.

As of mid-2008, Cisco RMS manages all or some of the following Cisco elements:

- Foundation technologies, including routers, switches, and wireless access points
- Unified communications systems
- Cisco TelePresence™ systems and associated security and network links

Transition to Cisco RMS

Before transferring responsibilities for network monitoring, Cisco IT performed a thorough assessment of the Cisco RMS organization. Members of the Cisco IT team met with the Cisco RMS staff, reviewed their management tools,

talked to the developers to determine how the tools compared to those used by Cisco IT, and observed operational practices.

Before the meeting, Cisco built a virtual office in a Cisco location and added it to the Cisco RMS management network. “For six hours we deliberately caused network problems and observed the techniques that Cisco RMS used for troubleshooting and resolution,” says West. “After we satisfied ourselves that they had the necessary tools and expertise, we had the confidence to begin out-tasking. We now consider Cisco RMS to be a partner rather than simply a monitoring organization.”

Cisco had not previously out-tasked any activities in the Americas region. For this area, Cisco IT decided to first transition operational responsibility for lower-priority IT environments, such as regional sales offices, and then medium-priority sites. As Cisco RMS successfully handled each new activity, the momentum of the transition increased. “At the beginning, our attitude was ‘Prove yourself,’” says Williams. “Later it became, ‘Can you take on this other task, as well?’”

In the Asia Pacific region, Cisco was already accustomed to out-tasking network management. Cisco IT simply pointed its devices to Cisco RMS and transitioned one regional center at a time, over six months. “The major issues that we had to resolve were who Cisco RMS should contact in our organization for each type of event, and how they should provide the information,” says Rosling.

Cisco RMS provides consistent global support while accommodating regional differences. “In India, for example, it is part of the culture to call local support instead of global support, so Cisco RMS established a local help desk,” says Wai Min Higa, director of global service delivery. “Their flexibility is very important for a global enterprise like Cisco.”

Table 1 shows the activities that Cisco IT assigns to Cisco RMS.

Table 1. Cisco RMS Responsibilities for Cisco IT Infrastructure

Scope
WAN management, including global backbone
LAN management
Wireless LAN management
Uninterruptible power supply (UPS) monitoring
IP telephony management (voice circuits and change management for Cisco Unified Communications Manager software)
IP telephony full operational management
Cisco TelePresence management

Cisco RMS follows the best practices defined the IT Infrastructure Library (ITIL), an industry-standard approach to running an IT organization. ITIL includes processes for service desk, incident management, problem management, change management, release management, configuration management, service level management, service readiness and continuous improvement, and transition management. Cisco takes advantage of all ITIL-defined services in varying degrees. For example, if a network device fails, the following processes might apply, in order:

- Incident management to determine if the cause and solution are known
- Problem management to discover the root cause of the problem, if it is not known
- Change management to get required approvals—(for example, if the problem is an incorrect configuration that must be changed)
- Release management to make the change

- Configuration management to update the internal database with the change

Representatives from Cisco IT and Cisco RMS meet frequently to review key performance indicators, including metrics and SLOs. “Cisco RMS has become a strategic partner because of its credentials, people, expertise, and management metrics,” says Williams. “When I approach Cisco RMS with a new IT environment that we would like it to manage, our account manager tells me the cost, then I can determine whether it makes sense to transfer that function. It does not get much easier.” These meetings have become formalized in monthly and quarterly reviews of network incidents and SLOs. The Cisco RMS team shares with Cisco IT, among other information, the following data:

- Number of tickets opened and their resolution times, both overall and by network, region, and location (Figure 2)
- Number of devices and device types monitored
- Top trouble categories, according to the trouble ticketing system (Figure 3)
- Top trouble sites and details about issues at these sites
- Top carrier issues and carrier relationships (82 percent of all issues involve carriers)
- Quality metrics (Figure 4)

Figure 2. Example of Monthly Issue Management Data (Note: Priority 1 = High priority issue; Priority 4 = Low priority issue; MTTR= Mean Time to Repair)

Carrier Incident Management

Priority	Volume Closed	% Tickets w/in Notify SLO	% Tickets w/in Isolate SLO	Avg. MTTR Hrs.	% Tickets w/in Restore Goal
1	1	100.00%	100.00%	0.39	100.00%
2	8	100.00%	100.00%	2.51	87.50%
3	20	100.00%	100.00%	2.16	95.00%
4	322	97.83%	99.69%	3.66	99.38%
Total	351	98.0%	99.7%	2.18	98.9%

Managed Equipment Incident Management

Priority	Volume Closed	% Tickets w/in Notify SLO	% Tickets w/in Isolate SLO	Avg. MTTR Hrs.	% Tickets w/in Restore Goal
1	0	0.00%	0.00%	0.00	0.00%
2	4	75.00%	100.00%	5.50	50.00%
3	3	100.00%	100.00%	37.48	66.67%
4	114	96.49%	100.00%	4.88	98.25%
Total	121	95.9%	100.0%	15.95	95.9%

Figure 3. Example Data for Top Trouble Categories (Note: IXC=Interexchange Carrier, LEC=Local Exchange Carrier, ISP=Internet Service Provider)

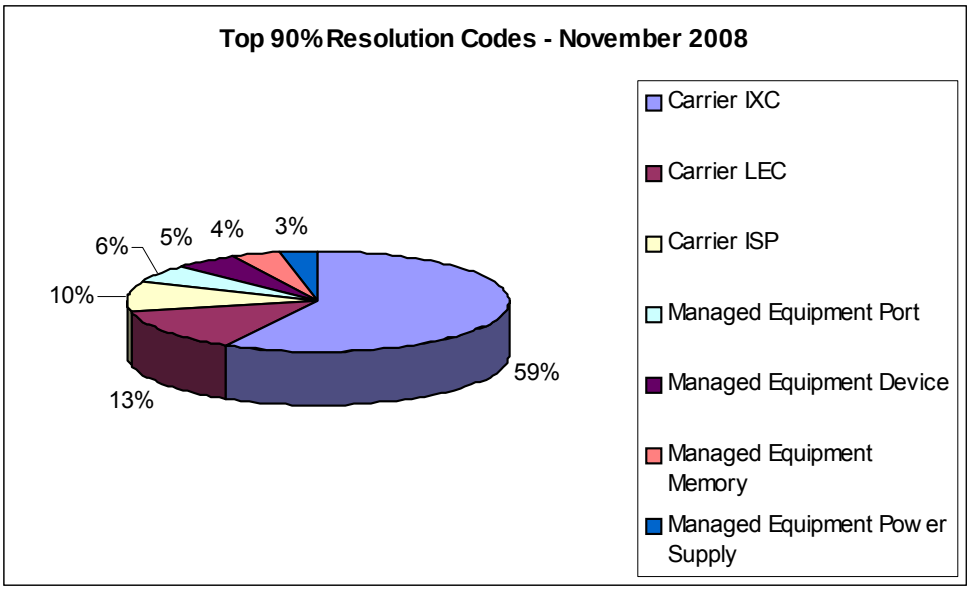
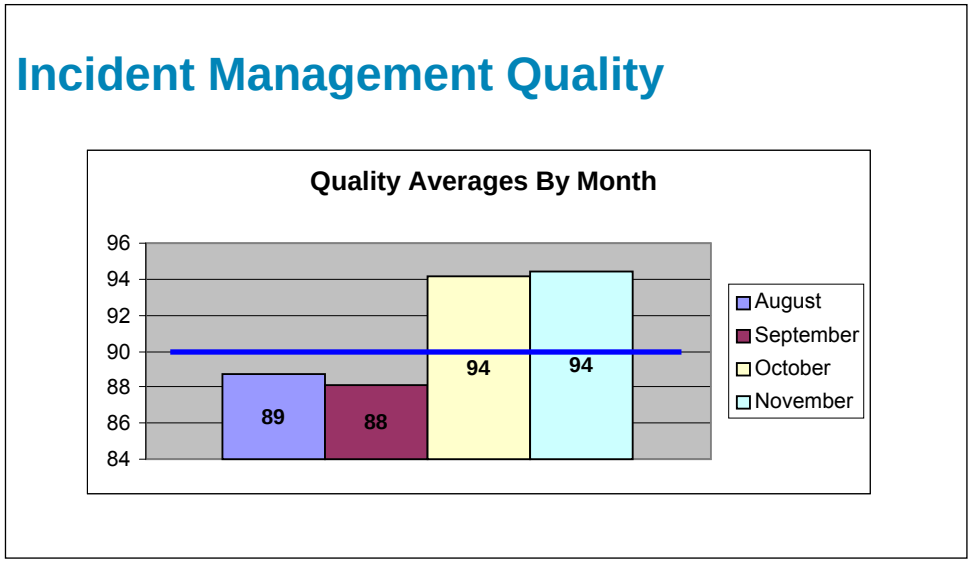


Figure 4. Example Cisco RMS Quality Tracking Data for Incident Management



Defining Escalation Practices

For network events, Cisco IT and Cisco RMS agreed on escalation practices based on the event priority. Cisco RMS notifies Cisco IT about low-priority events through e-mail. When events occur with medium or high severity, Cisco RMS works to resolve them for a defined number of hours and then, if the problem is not resolved, pages a designated Cisco IT representative. The escalation agreement is global and can be modified based on changing Cisco IT needs.

Expanding the Out-Tasking Relationship

Although Cisco IT engineers became comfortable with assigning basic network operations to Cisco RMS, they held onto other IT management activities. “We wanted to help Cisco IT understand that Cisco CA can offer high-quality

resources and practices for network management," says Jim Scaduto, service and support manager for Cisco CA. "Through a lot of constructive discussion, Cisco IT agreed that expanding the relationship with Cisco CA beyond basic Cisco RMS made sense."

John Manville, vice president of IT network and data center services at Cisco agrees, "We were doing it all when it would have been better to have IT resources focus on our key network projects, and have a service vendor address operational tasks. We learned that Cisco CA can handle support tasks more rapidly and efficiently because that is its focus."

Recognizing the opportunity for improvement, Cisco IT and Cisco CA started to expand and formalize their relationship. "We evolved from an informal, as-needed connection to a more defined, broader, and contractual relationship," says Bill Bragg, director of operations for Cisco IT.

As of mid-2008, Cisco CA is continuing to deliver Cisco RMS as well as the Cisco Network Optimization Support (NOS) service, the Cisco SMARTnet® Service, and the Cisco High-Touch Technical Support Service. (Table 2)

Table 2. Services Delivered by Cisco CA Under the Expanded Relationship with Cisco IT

Cisco CA Services for Cisco IT	Coverage
Cisco RMS, SMARTnet Service, and High-Touch Technical Support Service	Support, monitoring, and management services for the Cisco: Network Data centers and systems Applications Cisco TelePresence systems and rooms
Cisco Network Optimization Support Service	Advanced network assessments and support services
Consulting services	Network planning and optimization

This combination of services was chosen through extensive discussion between the two groups about which IT support and operational activities should be turned over to Cisco CA. The ongoing relationship is being further developed by a joint project management team. "We are continuing to define the core activities that are essential for the Cisco IT staff to manage and the context activities, which can be turned over to the Cisco CA team," says Scaduto.

Managing Cisco TelePresence Systems

Cisco RMS also remotely monitors and manages the availability, performance, and security of more than 300 Cisco TelePresence systems installed in Cisco offices worldwide. Equipment and network alarms are monitored centrally and around-the-clock by Cisco RMS to detect any issues that might affect a user's experience of a TelePresence virtual meeting.

"One difference in how we manage TelePresence incidents is that we set priorities based on the meetings that are scheduled for the affected room," says Castano. "Because TelePresence is often used by company executives, we need to be sensitive to their needs and time demands and resolve problems very quickly."

Adds Steve Franks, a Cisco RMS TelePresence manager, "The performance of the network links that connect to TelePresence sites also contributes to the user experience. We work with our customers as appropriate to help them identify an optimal network configuration."

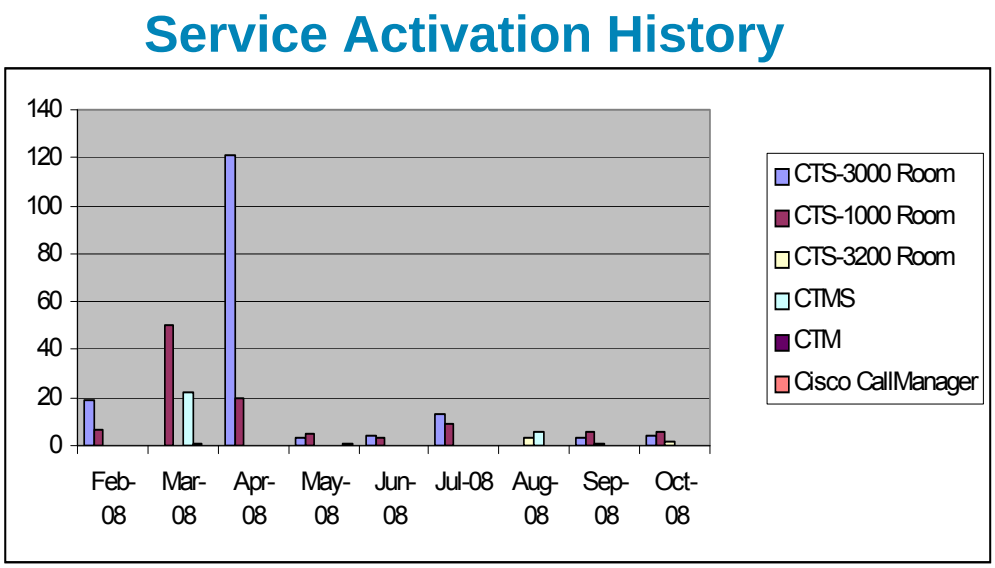
The Cisco RMS TelePresence team also manages on-site technicians who can check and adjust elements in the TelePresence room as needed, such as the placement of a plasma display or microphone. "So many different factors contribute to a high-quality TelePresence experience that both Cisco IT and Cisco customers have found it makes

sense to use the experience gained by Cisco RMS in managing these variables," says Scaduto.

As with the other networks that Cisco RMS manages for Cisco IT, frequent meetings were required in the beginning of the relationship, and these have since become more formal monthly meetings to review issues and SLOs. The Cisco RMS team shares with Cisco IT, among other information, the following data about Cisco TelePresence monitoring:

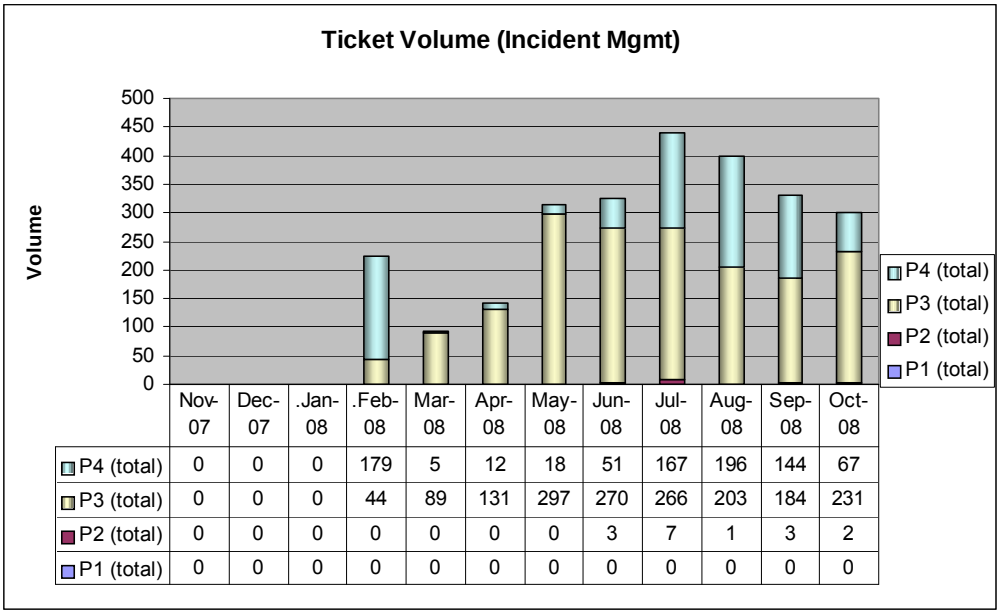
- Number and types of TelePresence rooms and equipment added to Cisco RMS monitoring and support (Figure 5)
- Trouble Ticket volumes and types over time (Figure 6)
- Sources of trouble tickets: submitted by users or automatically generated from Cisco RMS monitoring (Figure 7)
- Types of issues resolved
- Top incident rooms and locations

Figure 5. Example Data About TelePresence Room and Equipment Monitoring and Support by Cisco RMS



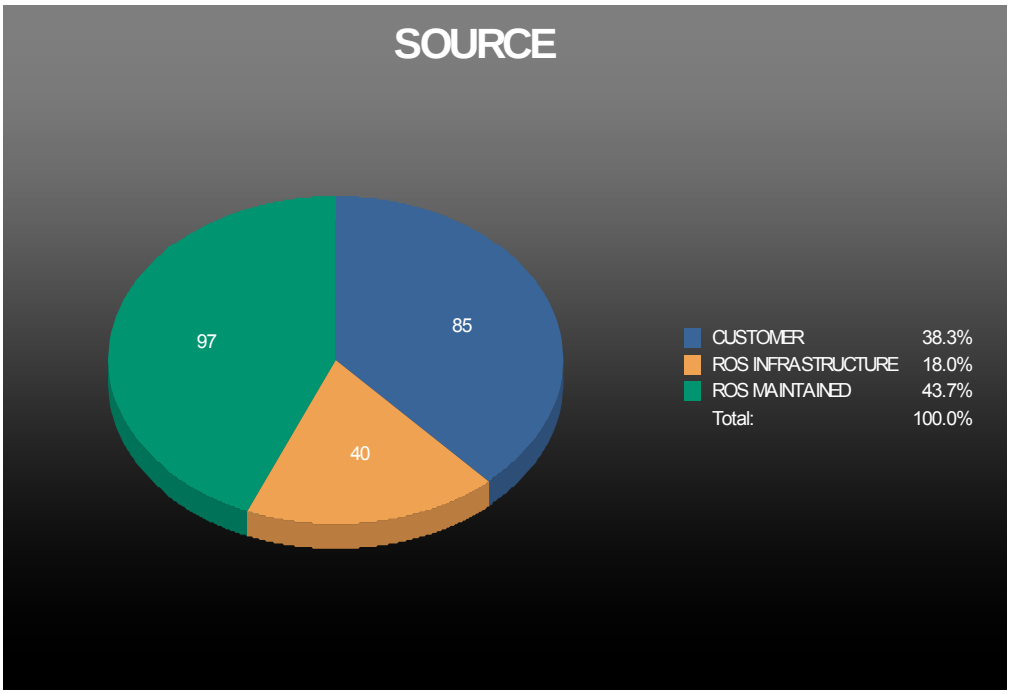
Cisco on Cisco TelePresence Rooms & Major Components Under Management										
	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Total
CTS-3000 Room	19		121	3	4	13		3	4	167
CTS-1000 Room	7	50	20	5	3	9		6	6	106
CTS-3200 Room							3	1	2	6
CTMS		22					6			28
CTM		1								1
Cisco CallManager				1						1

Figure 6. Example Trouble Ticket Report for Cisco TelePresence Monitoring



	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08
P4 (total)	0	0	0	179	5	12	18	51	167	196	144	67
P3 (total)	0	0	0	44	89	131	297	270	266	203	184	231
P2 (total)	0	0	0	0	0	0	0	3	7	1	3	2
P1 (total)	0	0	0	0	0	0	0	0	0	0	0	0

Figure 7. Example Report Showing Sources of Cisco TelePresence Trouble Tickets



Cisco Advanced Services Consulting

A new activity fostered by the expanded relationship between Cisco IT and Cisco CA is the use of consulting services offered by the Cisco Advanced Services group. As of mid-2008, Cisco CA has delivered a variety of ongoing services and special projects for Cisco IT, including the following:

- An audit of the IP communications infrastructure within Cisco and an analysis of the company's goals in order to identify an appropriate new architecture. This project also defined a road map for new technology deployments, with key deliverables and milestones.

- A plan for upgrading Cisco IOS® software on routers and other network devices. Although the IT network team had previously conducted this type of study, it required a dedicated employee, the right training, a testing lab, and other special efforts. In comparison, Cisco Advanced Services routinely completes these studies for Cisco customers, so this group has the expertise to identify which devices should receive a software upgrade and an appropriate schedule.
- A yearly network audit to fully identify the services, equipment, and links in use. This audit is also completed for distinct areas of the network, such as the IP communications deployment or the data centers.
- Advice on best practices and resources for IT mapping to identify the relationships between network switches, servers, and applications.
- Proactive assessments of network operations to identify potential improvements.

Another example is a Cisco Advanced Services engagement to optimize configurations across the Cisco network. "This engagement made sense because Cisco IT didn't have the resources to do this type of project internally and Advanced Services has a systematic process for analyzing and optimizing networks," says Manville.

RESULTS

The new relationship between Cisco IT and the Cisco ROS organization is producing the quantitative results of improved network performance as well as qualitative benefits for both departments and Cisco as a business.

Improved Network Performance

According to Guillermo Diaz, vice president of technical services IT for Cisco, "Cisco's infrastructure has benefited from increased availability and stability, which yields real business value."

Transferring certain responsibilities for network management to Cisco RMS and increasing the focus across Cisco IT on improving network and system performance were factors that correlated with a decrease in outages. As of early 2008, the number and duration of high-priority outages of IT systems was significantly reduced from the levels of two years earlier:

- The total number of outages was reduced by 29 percent.
- The average duration of an outage was reduced by a dramatic 66 percent, to just under two hours.
- Shorter recovery times were achieved for incidents and service losses caused by Cisco equipment because Cisco RMS can correlate network events and track trouble history, which helps to identify the sources of complex or chronic problems.

Strategic Focus for Cisco IT Staff

With more of the daily operational and support tasks for the Cisco network performed by Cisco RMS, the Cisco IT staff have more time to work on projects with higher strategic value for the company. This focus on core activities will help Cisco IT with activities such as deploying new technologies more quickly, or improving the network design and operations.

Access to More Experts

The expanded relationship with Cisco CA gives Cisco IT access to the product support experts in the Cisco Technical Assistance Center (TAC). "Because we often have a direct relationship with engineers in our product development groups, we didn't think that it was necessary to call on the product experts in the TAC," says Steve Adachi, IT Manager. "Now, the TAC staff can bring the expertise gained from supporting our customers' networks to solve issues in the Cisco network."

Business Benefits to Cisco

By finding more ways to work together, the departments are bringing new business benefits to Cisco. Cisco's internal deployment of the Cisco TelePresence systems, which was managed by Cisco RMS, is one example of how many areas of the company benefited from shared experiences and lessons. "Cisco RMS brings the value of real-world experience and best practices gained from extensive contacts with Cisco customers, especially those with larger or more complex deployments in certain areas such as unified communications," says Scaduto.

In another example, using the High-Touch Technical Support Services to resolve critical network issues provides feedback to the developers in Cisco business units. This feedback is particularly valuable for identifying product problems before they are experienced by customers.

Through their collaborative relationship, Cisco IT is also helping the Cisco ROS organization improve the services that it offers to Cisco customers. "Cisco IT is like most other customers in terms of basic network monitoring and management needs," says Scaduto. "But because of the unique nature of the Cisco network, the Cisco RMS team continues to learn from the requirements of Cisco IT's global operations and early deployments of new technologies, which are experiences we don't often encounter with Cisco customers. These experiences help us to extend new knowledge to the Cisco RMS team globally and to refine the processes, tools, and services that we offer to Cisco customers."

More Strategic Use of Cisco IT Resources

Relieved of 24-hour pager duty, Cisco engineers have more time and energy to devote to strategic new applications. "Our IT employees regard strategic out-tasking of contextual activities as a boost to their careers," says Higa. "Handing off routine activities helps them avoid the frustration that comes from doing contextual work for many years."

For example, as of 2007, Cisco IT was managing 20 strategic IT programs, such as availability metrics and strategy for the IP Next-Generation Network (IP NGN). "By out-tasking contextual functions, Cisco IT has more resources to devote to these core programs," says Williams. Rosling says, "Our IT professionals would prefer to work on new technologies rather than tasks like patching, and we have enough work on new programs to keep them busy indefinitely."

Improved Responsiveness

"People whose core competency is to respond to network problems tend to do a better, more consistent job," says Rosling. "Cisco RMS has a 24-hour network operations center as well as a translation service so their engineers can talk to service providers that do not have English-language support."

Global monitoring of the Cisco network enables Cisco RMS to identify potential network problems more quickly than when regional Cisco IT organizations monitored their own portions of the network. Says Quincy Hopkins, customer support engineer in Cisco RMS, "If we notice a bug that occurs with a particular router hardware and software combination in Europe, we can take action in other geographic regions before the problem even surfaces there. Global monitoring enables us to see rare problems more frequently than we would if we monitored each region separately, which accelerates problem identification and resolution."

Extended Coverage

Cisco IT also benefits from the extended coverage of Cisco RMS monitoring and case tracking. For example, Cisco RMS opens a support case when an outage occurs in a public switched telephone network (PSTN) circuit or when server hard drives fail. In the past, Cisco IT was not necessarily aware of these events if they did not interrupt business activity. "Transferring routine monitoring activities to Cisco RMS enables us to follow best practices for IT management and maintenance without hiring new staff," says Rosling.

Improved Productivity and Quality of Life for Cisco IT Staff

Cisco RMS handles hundreds of alerts each night in Asia Pacific alone, which means that Cisco IT staff can sleep better. “The improvement in quality of life for me and my team is invaluable,” says Rosling. “With a good night’s sleep, we perform better during the day.” West says that nighttime events requiring his attention have decreased by 75 percent.

Consistent Global Management

Previously, each of Cisco’s three geographic regions followed different processes for incident response. Cisco RMS employs consistent global processes, which facilitates scalability of the network support operation. If an operating system vendor issues a patch, for example, Cisco RMS installs it quickly, working outside of Cisco’s business hours in each geographic region. As Cisco grows, Cisco IT does not need to increase staff to handle operational tasks such as installing software patches.

“Cisco RMS designed its organization for one purpose: to provide remote network monitoring and management,” says Mennie. “They can scale far better than we can on a global basis. For Cisco IT to respond to network outages as quickly as Cisco RMS does—day or night—would require very large support teams and high costs.”

Benefits for Cisco Customers

“The relationship has been mutually beneficial for Cisco RMS and Cisco IT,” says Jones. “When we first began working with Cisco IT, we managed a smattering of services—different ones in each geographic region. As we gained trust and Cisco IT became confident in our abilities, our responsibilities continued to grow.”

As Cisco introduces new technologies, Cisco IT is generally the first customer to deploy them, which gives Cisco RMS early experience working with the technology. For example, Cisco RMS is working closely with Cisco IT and the Cisco TelePresence business unit on the internal global deployment of Cisco TelePresence. From the first day after installation, Cisco RMS assumed selected responsibilities for monitoring and managing the TelePresence endpoints, following best practices that Cisco IT and Cisco RMS developed jointly. Early experience with Cisco TelePresence has prepared Cisco RMS to provide skilled monitoring and management for other customers that adopt this technology. “By monitoring and managing new Cisco technologies that Cisco uses internally, such as Cisco TelePresence, we stay on the forefront,” Jones says. “By the time that Cisco releases new technologies to its customers, we already know what to watch and how to configure devices to deliver optimum performance.”

LESSONS LEARNED

The expanded relationship between Cisco IT and Cisco CA has produced several helpful lessons for Cisco customers that are considering Cisco CA services for network management and consulting.

Identify the best ways to use Cisco services. Develop guidelines for which tasks to turn over to Cisco RMS and which to keep within the IT organization, then develop a plan and roadmap for transitioning these tasks. As a way to determine where it is beneficial to use Cisco services, Bragg remarks that it is important to ask, “Can you really manage your network infrastructure yourself anymore given its complexity and the importance of the network to your business? You’ll need a strong relationship with your network equipment vendors and service providers for the most challenging issues such as proactive planning.”

“We’ve learned that Cisco Advanced Services can help you to be more effective in using the network in your business if you continue to use them proactively and maintain an ongoing discussion about improvements,” says Williams “You need to understand the breadth and depth of what Cisco CA offers in order to get the most value out of its services.”

Define service objectives. Take the time to set up clear SLOs so that everyone understands the services. “Both parties need to understand and sign off on the processes,” says Castano. “This is a critical success factor.” Charter Cisco RMS to achieve the SLOs and then give them flexibility within that charter. “We had to learn to give Cisco RMS the latitude to solve problems in its own way, provided that it was delivering the agreed-on results,” says Buchan.

Promote employee acceptance of change. "Network engineers and architects who have been here a long time understandably think they know the best ways to support and manage the network and IT infrastructure," says Diaz. "It was challenging at first to overcome the hesitation of the Cisco IT team to relinquish support and oversight activity to another group that may do things very differently."

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>
> **Craig Williams, Director for Cisco Global Network Operations**

As a solution to this challenge, Diaz recommends:

- Defining who does what, such as defining specific flows of service requests and how incidents and problems are managed by the different teams.
- Emphasizing the value of reduced operational workload for the IT staff, which allows them to spend more time on strategic projects.

Define processes for communication, escalation, and support. "It is not realistic to expect that every process will be fully defined at the outset," says Mennie. "When our partnership with Cisco RMS began, gaps in services would periodically appear. That is when communication is most essential." Rosling says, "Out-tasking is not smooth 100 percent of the time, so open, frequent, and direct communication is needed to resolve issues. We provide Cisco RMS with feedback for change in a timely and constructive manner and listen to its point of view as well."

Focus on service management rather than project management. "Previously, Cisco IT thought in terms of project management," says Higa. "Our people were accustomed to defined timelines, with a beginning and end. In contrast, service management is ongoing. The difference is that we look for continuous improvement rather than getting results on time and on budget."

Consider the internal processes of the affected organizations when defining processes. At Cisco, numerous support organizations are involved in problem reporting and resolution, and each has its own processes. For example, the Cisco Operations Command Center (OCC) opens low-priority and medium-priority trouble tickets and sends pages to the appropriate staff. In the original process that Cisco IT and Cisco RMS defined, Cisco RMS was to contact the OCC for those trouble tickets. However, the OCC does not page outside of normal local business hours, which stalled trouble tickets. "We amended the process so that Cisco RMS sends the page when a medium-priority event occurs, even outside normal business hours," says Mennie.

Share information. Be sure to provide Cisco RMS with the documentation needed to do the job well. Among the documents that Cisco IT provided to Cisco RMS were descriptions of the network addressing scheme, carrier contacts, circuit databases, and escalation procedures.

Plan to evolve the relationship. Changing needs are one constant factor in a large and complex IT environment. "We're never done making improvements in our network and IT operations because our business is so dynamic," says Ginna Raahauge, director of technical services for Cisco Customer Advocacy.

"We are looking at transitioning more complex and higher level tasks and responsibilities for network and systems management to Cisco CA," says Bragg. "We realize that Cisco CA has more knowledge for activities such as maintaining code versions and managing replacement of equipment that has reached the end-of-life stage."

NEXT STEPS

Cisco IT has been gradually expanding the number and complexity of services out-tasked to Cisco RMS, such as monitoring and support of Cisco's internal deployment of Cisco TelePresence systems. As of early 2009, Cisco IT is planning to add management of more than 450 Wireless LAN Controllers and 450 Wide Area Application Engines to the Cisco RMS monitoring and support portfolio.

The expanded partnership of Cisco IT and Cisco CA continues the tradition of Cisco being the first and best customer for its own products and services. This relationship will provide valuable input to both groups and to the Cisco

business units about product and service development. Cisco customers will continue to benefit from the improved products, expanded service offerings, and greater technical expertise that Cisco will be able to offer as an outcome of this collaboration.

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