



Uptime Services

Benefits of Online Services

Today's challenges in IT

With the rise of digital business, IT is struggling to keep pace with fast-changing business requirements. Aligning IT objectives to business objectives has become imperative for every IT leader. But there are many factors which hinder these initiatives, like escalating operating costs, instability of the infrastructure, resource and skill gaps. IT staff are not able to dedicate time for innovation or transformation projects because most of their time is spent on incidents and service requests. There is insufficient visibility into the status of infrastructure assets to support troubleshooting and issue identification.

Complex and manual integration systems along with unskilled support structures prevent organizations from delivering a better end user experience.

Almost every organization is moving to a multivendor strategy and this warrants that staff be skilled in multiple technologies. Since the technology is changing almost instantaneously, it's very hard to keep up with the challenge of training and maintaining the skills within the organization. Staff retention is another pain point which every organization faces.

Another concern for organizations is lack of 24x7 support required to continuously monitor the health of infrastructure and be available in the case of user incidents or service requests.

Organizations are spending millions of dollars in procuring, implementing and maintaining network monitoring systems and IT service management platforms. A large amount of effort is required to integrate multiple platforms to provide a seamless experience and this involves projects that run over several months. The cost of maintaining a separate staff to maintain these management systems is big concern.

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Drive towards IT optimization

To address these challenges, operating models need to change, and IT needs to improve and become more efficient and agile. Optimization of infrastructure as well as operational processes will be table stakes for success.

IT optimization requires proactive and preventative support to improve availability and reduce the number of service incidents. Optimization requires more automation to achieve both real time remediation of service incidents and lowering the mean-time to resolve when there is a problem. This requires the deployment and use of all the data streams available and leveraging analytics to continuously improve performance and take corrective actions before problems surface. Optimization also requires better process integration across technologies, vendors and services to not only speed up the resolution but also to simplify management and administration freeing up time to spend on innovation and new projects.

Our Support Services

Our Support Services can accelerate your IT optimization, increasing your overall operational effectiveness and improve your infrastructure availability. But you remain in control, all the way, end-to-end. With over 6,000 clients, our Support Services is the most trusted IT support and maintenance service in the world. Uptime is a portfolio of worldwide support and proactive service options for information technology (IT), networking, security, collaboration, and telephony infrastructure that improves uptime and enables your organization to better balance the cost of supporting your infrastructure with minimum downtime.

The portfolio is designed to allow you to choose the best-fit service level on a per asset basis from each of the four service plans ranging from Remote to Mission Critical and a set of additional Proactive Support Services options to help you manage your estate more effectively in terms of cost, and where a fully managed service is not an option for your organization.

We can help you simplify your vendor management by integrating ITSM processes across technologies and vendors. Our Services provide a scalable operational model, worldwide operational consistency, as well as, a predictable operating cost.

Our Uptime Service Plans will increase your infrastructure uptime while controlling costs. Our Uptime Service Plans are asset-based, providing the flexibility required to deliver the right level of support by device and location. We can proactively identify problems to reduce the number of incidents and improve repair time. We give you around-the-clock access to skilled engineering across multiple technologies.

Our Proactive Support Services improve operational efficiency and simplify management. We offer a consistent, simplified operational support model across multiple geographies and vendors. You get one global contract and a single point of contact. It frees up your technical resources from routine maintenance and automate standard processes. The different Uptime Service Plans, as shown in Table 1, can be chosen based on your business needs. Our portfolio is designed to give you the flexibility of service levels per asset from each of the four service plans. These plans range from Remote, our entry offering, right through to Mission Critical for your most critical systems.

Our Uptime Service Plans:

- **Remote** – designed primarily for the support of software products for which incidents are handled remotely. Remote support is provided on a 24x7 basis.
- **Parts Only** – for organizations who have sufficient skills to perform an onsite repair when needed, but don't have the scale to stock their own spares or the logistics capabilities to get parts to the right location at the right time. Remote support is provided on a 24x7 basis and when delivery of parts to site is required you're able to select from a set of service target options.
- **Onsite** – for organizations who require a combination onsite labour and/or parts in addition to remote support, providing a complete onsite solution for either hardware or software assets. This is suited to organizations who do not have local teams, parts, and/or engineering expertise to perform onsite repairs.
- **Mission Critical** – this plan is for both hardware and software assets in your network that must have minimum downtime and, when down, represent a significant impact on your business operations. This service plan provides an elevated level of support intimacy with fast track access to senior technical resources saving critical time when incidents occur.

Our Uptime Service Plans can be further enhanced with a set of additional Proactive Support Services to help you manage your estate more effectively.

Two of our services, namely Onsite and Mission Critical, are termed as 'Online Services' which provides proactive monitoring services to your infrastructure and thereby helps you to optimize your IT operations.

The scope of this white paper is to provide you with an overview of the benefits of these 'Online services' which will help you gain a better understanding of these services and realise the business value being delivered by them.

Online Services

With connectivity to your infrastructure, our Online Services enable faster response and repair. These services provide warnings of a failure or imminent failure or hardware components enabling us to proactively initiate fault resolution. On average, this accelerates incident response by 69% and repair time by 32%. It saves you time by eliminating the tasks normally required to identify the failure and submit a ticket.

These services help to simplify your operations management, save administration time, and proactively reduce the number of service incidents, shown in Figure 1.

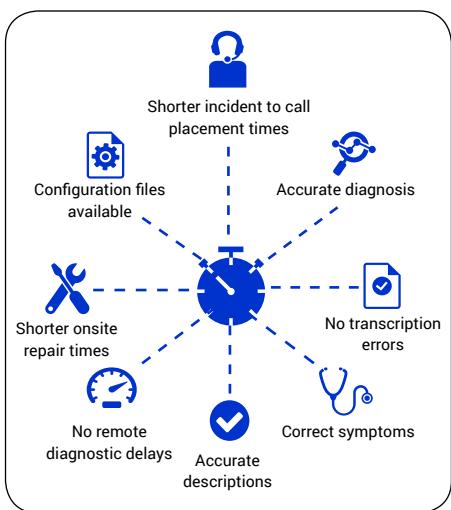


Figure 1: Online Services simplify your operations management

	Uptime Service Plans			
	Remote	Parts only	Onsite	Mission critical
Online Services			Onsite alerting	Availability and capacity monitoring and reporting Configuration archiving
Labour to site				
Parts to site		SLA options: 24x7 x 4 hour SLA BH x 4 hour SLA BH x NBD	SLA options: 24x7 x 4 hour SLA BH x 4 hour SLA BH x NBD	2 hour SLA
Incident response	30 mins	30 mins	15 mins	Fast track
Remote support	24x7	24x7	24x7	24x7

Table 1: Uptime Service Plans

Connectivity for Online Services

Our proactive services will ensure your network is available 24x7 by continuously monitoring your devices via our GSOA platform. IP reachability is required between your network and ours. We have the flexibility to achieve this using one of the three methods in Figure 2.

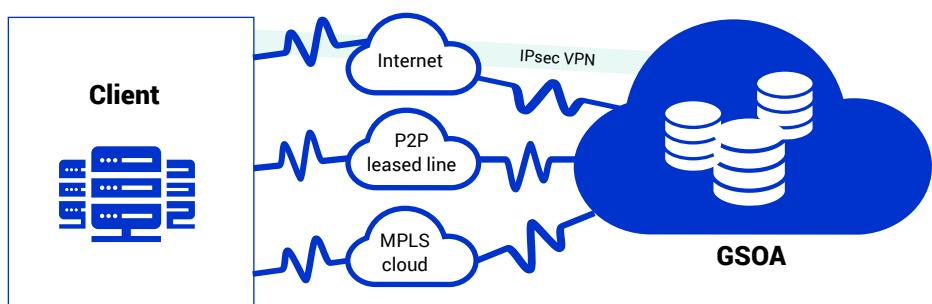


Figure 2: Flexible connectivity

Option one: IPsec virtual private network (VPN) over internet

Our recommended option is to establish a secure encrypted VPN connection over internet based on IPsec which gives advantage over the below three parameters:

Time – It is quick to establish a VPN. According to our experience, the configuration for setting up the VPN generally gets completed in less than two hours.

Flexibility – There is no dependency on the underlying internet media type for this VPN. The only requirement is to have your network able to reach our public IP address and identify as a VPN termination point.

Cost - Existing infrastructure is used for this and there is no need for additional investment in terms of a new physical circuit or terminating device.

The connection is encrypted using the following parameters to ensure confidentiality, integrity and availability (CIA) for all communication between NTT and your network.

Since the SNMP is a lightweight protocol, the bandwidth requirement through this VPN connection is minimal.

Option two: Point to point leased line

If a VPN connection is not suitable, we can provision a dedicated point to point private leased line between your location and NTT.

Option three: MPLS cloud

We can also connect to your network by being part of your existing MPLS cloud (if any). In this scenario, we will be treated as the branch location in your private cloud.

Delivery model

We use a global operating model allowing us to apply specialized resources centrally, providing the quickest response, and deploying local resources to give you the best possible service experience.

This 24x7 model centers proactive and support services quickly with the deepest level of expertise and is also responsible for service activation. Using state-of-the-art capabilities like omnichannel, we can respond to your issues much faster to ensure minimal downtime for your business.

With an onsite presence around 147 countries, we can dispatch engineers or hardware parts to your premises at the earliest and are able to track them using advanced field mobility tools. Our client service delivery management will conduct regular service review sessions to ensure you are on the right path on your journey to digital transformation.

Compliance to industry standards

Our global delivery centers are industry certified in ISO:20000, ISO:27001 and ISO:9000 to adhere to industry best practices on service management, security and quality standards and are subject to annual audits keep them that way.

Global services oriented architecture (GSOA)

GSOA is comprised of the foundational toolsets and platforms we use to support our processes and people in delivering services to your business. It provides a global, multi-tenanted solution that supports our services offerings – from support to outsourcing – on a common platform, as well as supporting local delivery requirements with global delivery capability.

The automation platform, which is part of GSOA, will ensure maximum events are handled by a virtual engineer and will ensure only business impacting events are converted to incidents. Figure 3 depicts the high-level architecture of our GSOA which is used for monitoring your infrastructure.

At a high level, GSOA has three components:

- **Remote infrastructure management** (RIM) is the layer where the network management function is carried out. We use EMC smarts assurance manager for this function which receives the SNMP traps from your devices. Configuration backup functionality is performed by Smarts NCM.
- **IT service management** (ITSM) is the layer used for managing ITIL processes for all client interactions. ServiceNow is the platform used for this.
- **Enterprise messaging routing** (EMR) is the service integration layer through which the RIM and ITSM communicate with each other.

Our standard product offerings combined with the global operating model delivers the below six key capabilities which will continue to deliver transformation and maximize growth for your business and improve your service experience with us.

Key capabilities:

- Faster time to value through improved end to end journey.
- Accelerated go-live and better worldwide operational management with a single ITSM system.
- Improved interactive experience by enabling an omnichannel approach that allows you to raise service incidents through different mechanisms like voice, email, chat, portal, etc.
- Commitment to meeting our SLAs, with knowledge base and field mobility tools our engineers are able to deliver speedy resolution.
- Continuous development of new and improved automations that control costs and speed resolution.
- Manage Centre Portal provides the ability to view the performance of your infrastructure from one place. You can log incidents, service requests, track progress towards resolution, and receive comprehensive and actionable reports.
- Simplified collaboration with NTT.

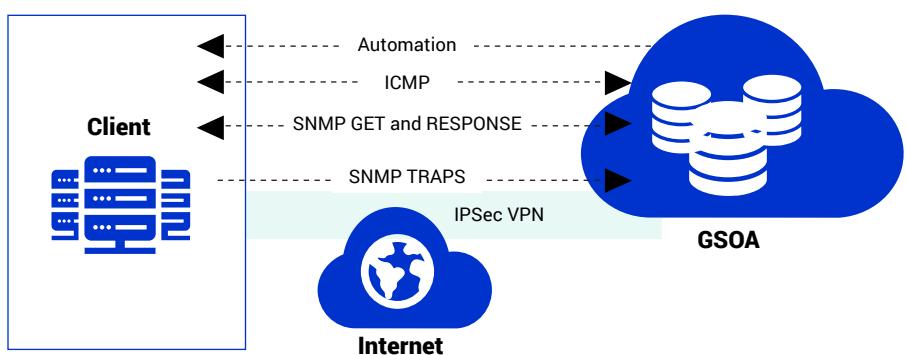


Figure 3: GSOA architecture

Benefits of Online Services

Proactive monitoring

With a reactive monitoring setup, you are exposing your backend infrastructure to your end users which will result in late detection of business impacting events thereby causing huge employee satisfaction issues.

In a typical scenario, shown in Figure 4, without the presence of an integrated monitoring system, an event goes unnoticed until an end-user faces an application issue. The IT user will be intimated after which the respective vendor or OEM is engaged for diagnosis and restoration. In some instances, the event will remain unnoticed for long periods which results in end-users working with degraded performance.

With our proactive services, the events are identified before an end user does with the help of industry standard network management protocols, as shown in Figure 5.

Our GSOA is a tightly integrated platform where the monitoring system and the IT Service Management system works hand in hand. As and when an event is identified by the monitoring platform, it is automatically converted to an incident ticket and assigned to an engineer. With our proactive notification, you will be notified of this incident within 15 minutes of actual detection of the event by our monitoring systems.

Since our tools and processes are ITIL compliant, the Incident ticket will have respective service level agreements (SLA) and operational level agreements (OLA) by which the engineer diagnoses the incident according to its severity. This will ensure your business is back to normal as early as possible.

We will monitor the availability of configuration items to include identified capacity thresholds. We have a carefully developed monitoring plan for each asset type that allows us to ensure that we are notified by events that matter and we don't distract you with ones that don't. In some cases, we can avoid future downtimes by ensuring that intermittent events which can result in incidents are not ignored.

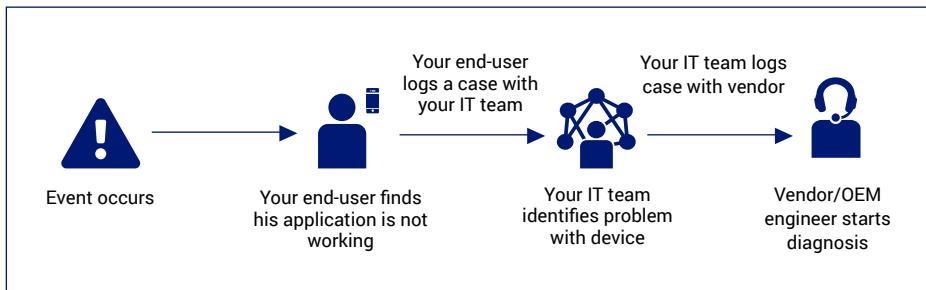


Figure 4: Typical scenario

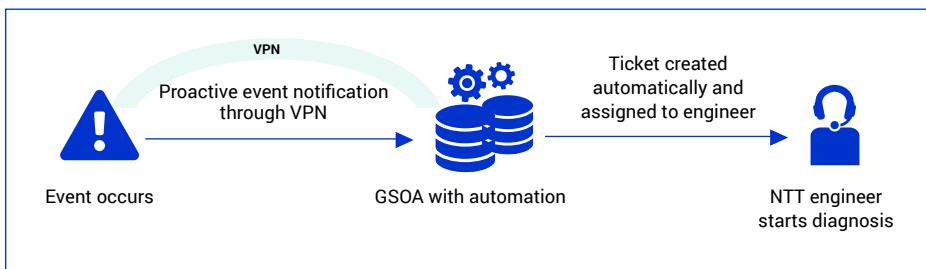


Figure 5: NTT's Online services approach

Automation

One of the values that NTT's GSOA platform offers is its automation capabilities. We use automation which will analyse the events generated out of SNMP traps and take action without the need of human intervention. This helps eliminate false events as well as avoiding any potential human error.

Our automation is proven to run at scale with more than 1,600 automation executions running every day across 450 clients. With these we are able to auto resolve or auto close 73% of the events from our client's infrastructure.

Some high-level functions that our automation performs:

- Events are enriched (analysis, correlation, and suppression).
- Events are auto validated and closed or promoted to incidents.
- Repeatable tasks are automated which increases the productivity of the support personnel.

Automating the repeatable tasks will enable our engineers to focus on more critical tasks which needs greater attention and also provides a quicker turnaround to your events without human error.

Easy access to your devices

During the event of an incident and in the absence of connectivity, our engineers have to rely on means like webconferencing to get access to your devices for initiating the diagnosis and subsequent troubleshooting. This will add significant delay in restoring your services due to the time and difficulty of setting up these remote sessions and this will require efforts from your engineers as well.

With the appropriate connectivity in place, it makes it easy for our engineers to access your infrastructure devices over this already established connection. This allows our engineers to log in to your infrastructure devices without any on-demand remote sessions with your engineer and the troubleshooting can be initiated instantaneously.

Improve mean-time-to-repair (MTTR)

As mentioned in the above sections, by detecting the events or incidents as early as possible with our monitoring platforms, automating almost all of the events and getting easy access to your infrastructure devices, the business impacting incidents are restored at the earliest. This leads to a better mean-time-to-repair (MTTR) which will improve your overall network availability.

Configuration Archiving

Our Configuration Archiving service allows you to plan for unplanned outages. On an ongoing basis we will archive the configuration of your covered assets saving both the current configuration and previous version. Most supported devices have the capability to inform our monitoring systems that the configuration has been changed, initiating a fresh configuration download.

Configurations are archived monthly and compared to the last stored configuration to ensure the latest version is saved. This will ensure latest configuration is available for restoration during hardware failures or any failed changes. You will be able to restore your business to normal at the earliest possible time with our configuration archiving service by providing easy and quick access to stored configuration files.

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It also reduces the risks associated with configuration errors by enabling the return to known good versions which improves your overall security posture.

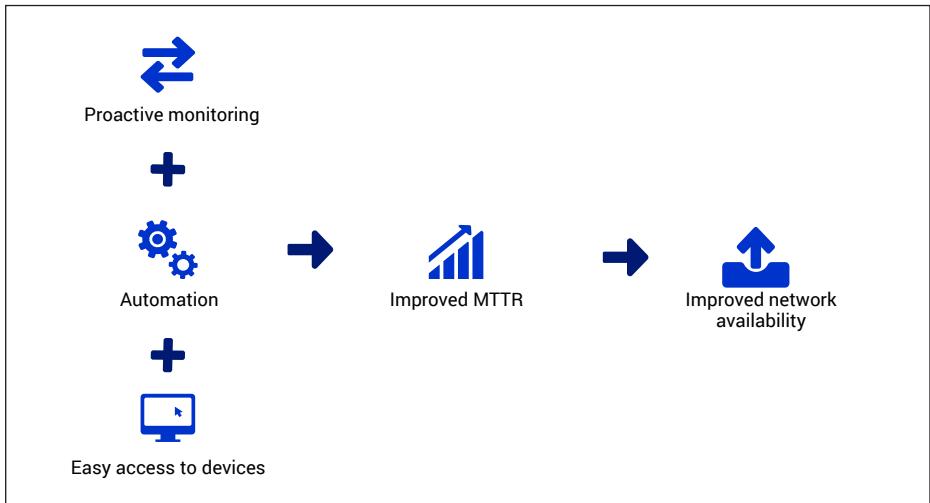


Figure 6: Improving MTTR with an effective approach

Improve device stability

Availability and Capacity Monitoring helps to ensure that the configuration items supported are available and operating at acceptable levels. Availability and Capacity Monitoring will help enable your organization to sustain the service availability required to support your organization's needs and predict your future needs. We will proactively monitor the availability and performance of your covered infrastructure on a real-time basis by configuring a set of asset-applicable thresholds. This will include such key performance indicators as central processing unit (CPU) utilization, memory, key processes, physical and virtual network interfaces, and the performance of carrier services, to name a few.

Our monitoring services also improve identification of assets requiring upgrade (i.e. more memory, faster storage devices, faster processors, greater bandwidth) and allows you to take necessary hardware upgrades at right time without risking any business performance.

Our services also ensure the devices are running the supported versions of software and not any deferred or end-of-life (EoL) software versions.

Asset Tracking and Analytics

One of the proactive service elements which can complement our Uptime Online Service plan is the Asset Tracking and Analytics service plan. We will provide automated discovery of the Cisco hardware and embedded software products in your network via our global service operating architecture (GSOA) at a frequency mutually agreed between your team and NTT. It needs to be an ongoing and regular discovery that keeps track of the changes in your dynamic environment. Discoveries are run once a month.

Through the asset discovery the information like hardware model, serial number, IP address, and hostname are captured. Industry network management protocols like SSH/Telnet and SNMP are used for this discovery. With our Asset Tracking and Analytics service, you will be notified of vendor notifications like end of support or end of life, software updates, field notices, known bugs and security vulnerability issues.

Asset Tracking and Analytics leverages the data collected and enables you to better plan technology refreshes and standardization.

The interactive reporting dashboards make information retrieval easier, supports contract rationalization and reduces renewal efforts. The risks and cost of downtime caused by unknown and unsupported assets and security vulnerabilities are reduced with this service.

Actionable insights through Manage Centre Portal

Our proactive services monitor your infrastructure 24x7 and shows the availability and capacity data on Manage Centre. We can view the real-time status of the device availability and health statistics like CPU, memory and interface utilization, and the historical trend over a period. This helps us to manage your capacity well and perform timely upgrades.

It also shows a health score where we can view whether the device is healthy or not depending on its availability, number of severity one or severity two incidents, etc.

The colour coded doughnuts in the home page reflects the overall health of our IT infrastructure in red, amber or green. The geographical maps help us identify business impact by location.

The availability reports on Manage Centre covers both a real-time and historical view of the availability of your infrastructure. This provides a monthly availability summary with a percentage of availability of each device, top availability problems and any exceptions. A sample real-time availability snapshot is displayed in Figure 7.

Capacity related information like interface utilization, CPU or processor utilization, and memory utilization are captured and displayed in Manage Centre. By having the ability to view these metrics in real-time, our support team can partner with you to quickly eliminate or confirm performance issues being experienced. These charts are also easily exportable for reference purposes. The report can be interactively adjusted for the reporting period (e.g. one day, one week, etc.).



Figure 7: Sample availability report

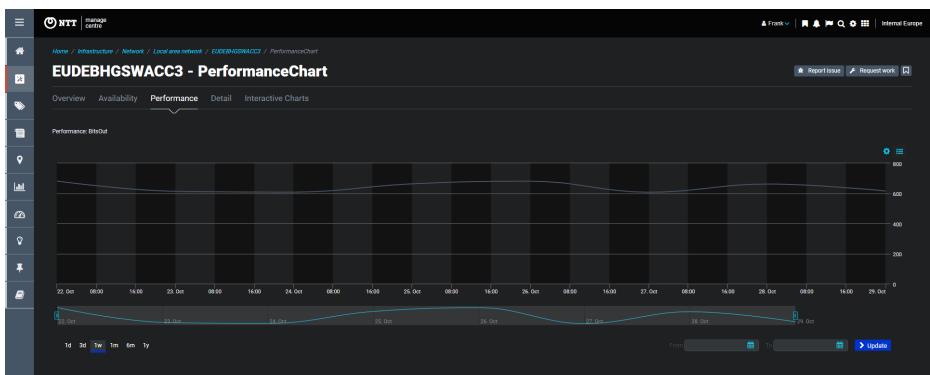


Figure 8: Sample real-time CPU utilization graph for a device

Summary

Our Online Services, which are part of the Uptime Service Plans portfolio, provide proactive monitoring for your infrastructure which increases the overall availability of your network resulting in increased business uptime.

It directly influences your users' satisfaction and the reputation of your organization by helping to provide your users with a consistent experience that will increase their productivity and a reduction in user complaints.

Some of the benefits of Online Services are:

- early detection and quick response through proactive monitoring
- zero-touch automation to auto validate and remediate events, improving resolution time for continual service improvement
- smooth access to your infrastructure devices for our engineers to initiate diagnosis and restoration

- faster repair and restoration of incidents thereby improving the MTTR and overall network availability
- improve the overall health of individual devices by tracking its real-time and historical performance thereby taking preventive actions
- ability to auto-discover and track your assets and proactively take measures in case of any unsupported hardware or software versions
- better visibility and insights to adopt technology and services effectively through Manage Centre by providing transparency to your infrastructure



Together we do great things